STRATEGIES TO IMPROVE PENSION FUND EFFICIENCY
IN KENYA

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in the

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Promoter: Prof CA Arnolds
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PORT ELIZABETH
DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than Nelson Mandela Metropolitan University in Port Elizabeth for academic credit. I further declare that I followed all the applicable ethical guidelines in the conduct of the research.

Signed____________________________  Date________________

Amos G. Njuguna

This thesis has been presented for examination with my approval as the promoter.

Signed____________________________  Date________________

Prof. C.A. Arnolds
ABSTRACT

Pension funds are the principal sources of retirement income for millions of people in the world. Pension funds are also important contributors to the gross domestic product (GDP) of countries. This study focuses on pension funds in Kenya. Retirement income accounts for 68% of the total income of retirees in Kenya, while pension assets account for 30% of Kenya’s GDP. It is therefore important that pension funds be managed effectively, not only in Kenya, but also in other countries.

The primary objective of the study is to investigate ways of enhancing pension fund efficiency by establishing the determinants of such efficiency. More specifically, the study explores the effect that the organisational culture, regulations, investment strategy, ethics, risk management, design, size and the age profile of members of pension funds exert on the efficiency of these funds.

A sample of 749 pension funds was drawn from the Kenyan Retirement Benefits Authority (RBA) register. The sample selection was based on the criterion that these pension funds should have been in existence within the period 2001 to 2008. Seven hundred and forty-nine (749) questionnaires were mailed to the trustees of these pension funds. Three hundred and sixty-two (362) usable questionnaires were returned, which translated into a response rate of 48.3 per cent.

Except for financial efficiency, self-constructed instruments based on secondary literature reviews were used to measure the variables in the hypothesised model to improve pension fund efficiency. Appropriate steps were taken to ensure the validity and reliability of these measuring instruments.

The empirical results revealed that leadership, governance, regulations, design, membership age and size of funds had no significant influence on operational efficiency of these funds. The results further showed that the membership age, design, regulations and operational efficiency of pension funds exerted no significant influence on their financial efficiency. The results also revealed that the membership age, size and design of pension funds did not influence how these funds were led by their leadership.
The empirical results however showed that smaller pension funds were perceived to exhibit better financial efficiency, while pension funds with membership aged 31 - 40 were perceived to be better governed compared to other age groups. Finally, in rigorous structural equation analyses, no significant relationships were found between fund regulations (independent variable), on the one hand, and fund governance and leadership (dependent variables), on the other hand. Use of simple linear regression however disclosed a significant positive relationship between the afore-mentioned independent variable and dependent variables.
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CHAPTER 1
SCOPE OF THE STUDY

1.1 INTRODUCTION

Pension funds are the principal sources of retirement income for millions of people in the world (Sze 2008:3). Retirement income accounts for 68% of the total income of retirees in Kenya (Kakwani, Sun and Hinz 2006), 45% in Australia, 44% in Austria and 80% in France while in South Africa 75% of the elderly population rely on pension income (Alliance Global Investors 2007). In the United States of America 82% of retirees depend on pension income (EBRI 2007a). Pension funds should therefore be managed efficiently to ensure higher retirement income for pensioners.

Global indices indicate that pension assets are important to any economy. According to Alliance Global Investors (2007), pension assets in Australia amount to AU$ 1 trillion (equivalent to 20% of the GDP), while in Belgium pension assets amounted to 140 billion Euro in 2004. In 2003, the pension assets of Canada were worth CAD 1.3 trillion (30% of the GDP), while in China pension assets amounted to RMB 714 billion (24% of GDP) for same year. The contribution of pension assets to the GDP of the United Kingdom reached 14% (GDP 1.9 trillion) in 2003, while in the United States of America, the pension assets had a value of US$ 14.5 trillion (37.7% of all household financial assets). Closer to home, namely in Kenya and South Africa, the pension assets had a value of KSH 130 billion in 2006, which accounted for 30% of the GDP (RBA 2007) and ZAR 1098 billion in 2004 (Alliance Global Investors 2007) respectively. Pension funds are therefore important contributors to the GDPs of countries and should consequently be managed effectively.

The global pension crisis has threatened to erode contributions that pension funds make to the world economies (OECD 2008a). The crisis manifests in countries that have inadequate funds to cater for the retirement income of the
ageing population as a result of depressed financial markets. OECD (2008a) estimates that in 2008, pension fund assets reduced by 8.5% in Germany, 16.9% in Netherlands, 17.4% in UK, 20.1% in Japan, 21.4% in Canada, 26.2% in the United States of America, 26.7% in Australia and 37.5% in Ireland. In Kenya, the losses were estimated at 35% (RBA 2009). Effective pension fund investment strategies are needed to ensure that pension fund assets are protected against externalities in the investment universe.

Old age poverty rates are increasing in the 21st Century. The Institute for Pension Supervisors (IOPS) (2008a) estimates the old age poverty rates at 30.6% in Ireland, 26.9% in Australia, 23.6% in USA, 22% in Japan, 10.3% in UK, 9.9% in German, 8.8% in France and 56% in Kenya with other African countries recording much higher rates. Research shows that old age poverty arises because 85% of the World’s population over 65 has no retirement benefit at all (Holzman and Hinz 2001:12; Stewart and Yermo 2008:4). In the Sub-Saharan Africa, less than 10% of the population has a contributory pension arrangement to help them save for their retirement (Palacios and Pallares-Miralles 2000:8). Pension fund arrangements should therefore be encouraged to enable the general population to save for retirement and consequently reduce the old-age poverty levels.

Pension funds are expected to increase the replacement rates (percentage of retirement income to pre-retirement income) (Sze 2008:6; Aon 2005a; Mitchell and Phillip 2006:39; Kakes and Broeders 2006:8; Bettendorfa and Heijdra 2006:2391). According to IOPS (2008a), the replacement rates induced by pension fund growth were 95.7% in Greece, 81.9% in Netherlands, 81.2% in Spain, 80% in Austria, 67% in Korea, 49% in the Czech Republic, 44% in Canada, 41% in the United States of America, 36% in Mexico and 31% in the United Kingdom. Although no statistics are indicated, IOPS expects the replacement rates in African countries to be much lower than the selected countries. Pension funds should therefore be managed effectively to increase the replacement rates.
The United Nations estimates that by 2050, there will be almost 2 billion people over 60, worldwide, close to 80% of them will be living in developing countries (see figure 1.1). According to Help Age International (2006), the over 60s and the over 80s represent the fastest growing population group on the African continent with the numbers of elderly people increasing by 50% between 2000 and 2015 and nearly fivefold by 2050. Research on pension fund efficiency is therefore needed to ensure that the elderly population does not fall into the poverty trap after retirement.

FIGURE 1.1: DISTRIBUTION OF WORLD POPULATION AGED 60 YEARS AND OLDER

Source: United Nations world population prospects 2008

The pension fund industry is a significant source of capital in the Kenyan financial markets (Omondi 2008:18). According to Omondi, pension funds invested a sum of Ksh. 223 billion in the Kenyan financial sector in 2007 of which Ksh. 77 billion (22% of the outstanding domestic debt) was invested in government securities. Pension funds are thus significant institutional investors and must therefore be managed efficiently.

Moreover, according to the Kenyan RBA (2008), there were 1679 pension funds by the close of 2007, of which 130 funds were in the public sector, 16
were individual retirement schemes and the rest were established by private enterprises. The financial efficiency of pension funds, both public and private, has however come under increased scrutiny. It has been reported that, of the 130 plans in the public sector, 69 are grossly under-funded and need urgent measures to revitalise them (Daily Nation 2006). Research on ways to improve the efficiency of pension funds in Kenya and arguably across the world is therefore of great importance.

According to Bateman and Mitchell (2004:68), pension fund efficiency is important as it results in higher returns on investment and consequently high retirement benefits to the pensioners. Inefficiency, however, leads to higher costs of operation, low returns on investment and in extreme cases to the demise of the funds (Bikker and Dreu 2009:5). Low investment returns and the closure of pension funds reduce the latter's contribution to the GDPs of countries.

Given the above background, it is important that research be carried out on the improvement of pension fund efficiency. This study investigates the critical success factors of pension fund efficiency.

**1.2 CONCEPTUAL MODEL TO IMPROVE PENSION FUND EFFICIENCY**

**1.2.1 Systems theory view of pension funds**

Pension funds like other organisations, can be viewed as open systems since they collect and accumulate contributions from employees (members) and their sponsors (employers who establish the pension fund), invest the contributions and hold the proceeds in stewardship for the benefit of the members upon retirement (Davis 2005:5). Davis (2005) thus suggests that pension funds have definite inputs that they convert to outputs. Following this systems theory approach (inputs – conversion – outputs), efficiency in the present study is conceptualised as the pension fund’s ability to maximise financial outputs (pension fund value and retirement benefits) from the scarce
financial resources (contributions, investment funds, other inputs) available to it. According to Chansarn (2005:2), a financially efficient system ensures distribution of limited funds to the most beneficial uses in the most effective manner.

The systems approach is also evident in the OECD’s (2004) description of efficiency. The latter defines efficiency as controlling spending, accomplishing more with lesser financial resources, commissioning long term investments to save financial resources in the long term and using budgets prudently.

Concurring with the systems approach, pension fund efficiency in the present study is defined as the ability of a pension fund to maximise its financial outputs (retirement benefits and asset values), operate at minimal costs, pay retirement benefits on time and generally optimise gains to members.

Figure 1.2 illustrates the present study’s conceptualisation of pension funds as systems. The figure shows that a pension fund transforms financial inputs (asset values at the beginning of a financial year, contributions and payments for inputs) for the gain of the members (retirement benefits and asset values at the end of the financial year). Efficiency is regarded as a function of internal management. An efficient pension fund should operate at the lowest possible cost and maximise its returns on investments and benefits payable to the retirees.
1.2.2 Pension fund efficiency model

Hager and Flack (2004:5) describe efficiency as getting the most mission-related activity out of the least amount of financial resources. Other studies (Canadian Treasury Board 2009; Chansarn 2005; Baker, Logue, Rader and Clark 2005) visualise efficiency as the degree to which management is able to provide deliverables at the least possible cost. The present study conceptualises pension fund efficiency, using the Data Envelopment Analysis (DEA) and operational efficiency approaches as the end result of effective governance, adherence to pension fund regulations, implementation of an effective investment strategy, adhering to fund ethics, managing pension fund risk, choosing the appropriate pension fund design and managing the age profile of the members as well as the size of the pension fund.
1.3 PROBLEM STATEMENT

Empirical literature reviewed suggests that there are some research gaps regarding the efficiency of pension funds. The research gaps relate to computation of efficiency, governance, investment strategy and pension fund size. Each of these gaps is discussed in the following sections.

1.3.1 Evaluation of efficiency of pension funds

Studies on the performance of pension funds either use financial ratio analysis (Dulebohn 1995) or compare the pension fund returns with the market indices (Stanko 2002; Bikker and Dreu 2009). The use of Data Envelopment Analysis (DEA) has been documented as a more superior technique of analysis of efficiency (Cinca, Mal Morinero and Garcia 2002; Barros and Garcia 2006) since it enables the ranking of the institutions being evaluated and generates scores for inefficiencies. Very few studies have used DEA to measure pension fund efficiency. The present study intends to quantify the efficiency of pension funds using DEA in addition to the
operational measures and identify the explanatory variables for the efficiency status.

1.3.2 Pension fund governance

Although corporate governance has attracted much attention in the recent past, focus has not shifted to pension fund governance and credibility of the pension systems as important determinants of pension funds (Besley and Prat 2005; Carmichael and Palacios 2003; Ambatchsheer 2001). Additionally, there appears to be a research gap on the attributes of an effective pension fund board of trustees in terms of composition; whether to provide finance education to the trustees or whether to compensate trustees for the services they offer. The present study intends to determine the governance variables that ensure high financial efficiency of pension funds.

1.3.3 Pension fund investment strategy

Different authors (Asebedo and Grable 2004; Markese 2000; Stanko 2002) relate the investment strategy to the mix that an investor makes in the investment portfolio. Asebedo and Grable (2004) further identify two investment management styles: passive and active management and argue that passive investment management is more conservative than active investment management. A research gap has been identified, as the empirical literature does not relate the investment strategy to efficiency. The present study will investigate the appropriate investment strategy to maximise operational efficiency.

1.3.4 Pension fund size

Literature on the relationship between size and efficiency reveals mixed findings. Studies that report on the absence of the relationship include Cicotello and Grant (1996), Droms and Walker (2001) and Grinblatt and
Titmat (1994). Contradictory results on the same proposition are included in Gallagher and Martin (2005) and Cheong (2007). In terms of risk, Droms and Walker (2001) noted that portfolios of smaller funds are more risky than larger funds but found that smaller funds outperforming the larger funds. Malhotra and McLeod (2000) found contradicting results on the same issue. The contradictory findings of the empirical studies have left a research gap on the optimum fund size. The present study will attempt to determine the fund size that is prevalent in the most efficient pension funds.

1.4 RESEARCH OBJECTIVES

The primary objective of the study is to investigate ways of enhancing pension fund efficiency in Kenya by establishing the determinants of such efficiency. More specifically, the study explores the effect that governance, regulations, investment strategy, fund ethics, pension fund risk, design, size and the age profile of members have on the efficiency of pension funds.

The study therefore pursues the following secondary objectives:

- To investigate the relationship between fund governance and pension fund efficiency (as measured by operational efficiency).
- To investigate the relationship between fund governance and pension fund efficiency (as measured by financial efficiency).
- To investigate the relationship between fund regulations and pension fund efficiency (as measured by operational efficiency).
- To investigate the relationship between fund regulations and pension fund efficiency (as measured by financial efficiency).
- To investigate the relationship between investment strategy and pension fund efficiency (as measured by operational efficiency).
- To investigate the relationship between investment strategy and pension fund efficiency (as measured by financial efficiency).
- To investigate the relationship between fund ethics and pension fund efficiency (as measured by operational efficiency).
To investigate the relationship between fund ethics and pension fund efficiency (as measured by financial efficiency).

To investigate the relationship between fund risk and pension fund efficiency (as measured by operational efficiency).

To investigate the relationship between fund risk and pension fund efficiency (as measured by financial efficiency).

To investigate the relationship between fund design and pension fund efficiency (as measured by operational efficiency).

To investigate the relationship between fund design and pension fund efficiency (as measured by financial efficiency).

To investigate the relationship between fund size and pension fund efficiency (as measured by operational efficiency).

To investigate the relationship between fund size and pension fund efficiency (as measured by financial efficiency).

To investigate the relationship between the age profile of the members and pension fund efficiency (as measured by operational efficiency).

To investigate the relationship between the age profile of the members and pension fund efficiency (as measured by financial efficiency).

To investigate the relationship between operational efficiency and financial efficiency of pension funds.

1.5 NULL HYPOTHESES

To achieve the objectives of the study, the following null hypotheses were formulated:

\[ H_{01a}: \text{Pension fund governance exerts no influence on pension fund efficiency (as measured by operational efficiency).} \]

\[ H_{01b}: \text{Pension fund governance exerts no influence on pension fund efficiency (as measured by financial efficiency).} \]

\[ H_{02a}: \text{Adherence to pension fund regulations exerts no influence on pension fund efficiency (as measured by operational efficiency).} \]

\[ H_{02b}: \text{Adherence to pension fund regulations exerts no influence on pension fund efficiency (as measured by financial efficiency).} \]
H03a: **Investment strategy exerts no influence on pension fund efficiency** (as measured by operational efficiency).

H03b: **Investment strategy exerts no influence on pension fund efficiency** (as measured by financial efficiency).

H04a: **Adherence to fund ethics exerts no influence on pension fund efficiency** (as measured by operational efficiency).

H04b: **Adherence to fund ethics exerts no influence on pension fund efficiency** (as measured by financial efficiency).

H05a: **Risk management exerts no influence on pension fund efficiency** (as measured by operational efficiency).

H05b: **Risk management exerts no influence on pension fund efficiency** (as measured by financial efficiency).

H06a: **Pension fund design exerts no influence on pension fund efficiency** (as measured by operational efficiency).

H06b: **Pension fund design exerts no influence on pension fund efficiency** (as measured by financial efficiency).

H07a: **The age of members exerts no influence on pension fund efficiency** (as measured by operational efficiency).

H07b: **The age of members exerts no influence on pension fund efficiency** (as measured by financial efficiency).

H08a: **Fund size (as measured by the number of members) exerts no influence on pension fund efficiency** (as measured by operational efficiency).

H08b: **Fund size (as measured by the number of members) exerts no influence on pension fund efficiency** (as measured by financial efficiency).

H09: **Operational efficiency exerts no influence on financial efficiency.**

The null hypotheses are graphically illustrated in Figure 1.4.
FIGURE 1.4: GRAPHICAL ILLUSTRATION OF THE NULL HYPOTHESES

Operational efficiency

Financial efficiency

Fund governance
  Ho1a
  Ho1b

Fund regulations
  Ho2a
  Ho2b

Investment strategy
  Ho3a
  Ho3b

Fund ethics
  Ho4a
  Ho4b

Risk management
  Ho5a
  Ho5b

Fund design
  Ho6a
  Ho6b

Membership age
  Ho7a
  Ho7b

Fund size
  Ho8a
  Ho8b
1.6 OPERATIONALISATION OF THE VARIABLES

This section clarifies and operationalises the variables included in the conceptual model.

1.6.1 Financial efficiency

Different studies (Dobronogov and Murthi 2005; Caswell 1976; Ippolito 1989; Ferrier and Lovell 1994; Bikker and Dreu 2009) concur that financial efficiency lies in the ability of a pension fund to pay maximum pension benefits and generate maximum returns on the investments made, given its level of contributions, investments and costs incurred. Two measures of efficiency were used namely financial efficiency using Data Envelopment Analysis (DEA) and through operational efficiency.

DEA efficiency was ascertained as the average of the efficiency scores generated for each pension fund each financial year from 2001 to 2008 using DEA. According to Cinca et al. (2002), DEA should be used when it is desired to calculate financial efficiency levels within a group of organisations and explain whether the main source of inefficiency is the size of the organisation, managerial capabilities or factors external to the firm. Serrano and Mar Molinero (2001) add that the DEA scores range from 1% - 100%.

1.6.2 Operational efficiency

Operational efficiency is defined as the ability of a pension fund to meet non-financial objectives (Canadian Treasury Board 2009:5). In this regard, empirical variables that were used to evaluate operational efficiency were: strategic management of administration and investment costs, timely processing of pension benefits, improvement in the internal control systems, efficiency in the conduct of trustee meetings, timely reporting to members, decrease in compliance costs, increasing the rate of return, critical involvement of members in decision making, pension fund board autonomy
from the sponsor, achieving appropriate funding levels, appointing service providers competitively and effective compliance with the pension law.

### 1.6.3 Fund governance

In empirical models, pension fund governance is measured by the use of board composition and financial expertise of trustees variables (Hsin and Mitchell 1997; Mitchell and Yang 2005), plan management practices based on expense ratios (Mitchell and Yang 2005; Bikker and Dreu 2009), as well as decisions on whether funds outsource their services (Bikker and Dreu 2009).

Additionally, Mitchell and Yang (2005) show that governance variables of a pension fund may also include board (trustee) composition (proportion of active and retired trustees). Governance of a pension fund is also determined by the pension fund sponsor, be it a public enterprise, private enterprise or a financial institution for an individual retirement fund (Bikker and Dreu 2009).

Governance variables used in the present study are: composition of the board of trustees, effect of the CEO on the leadership of the pension fund, finance education to trustees, liability insurance cover for trustees, appointment of service providers, adhering to a set of internal controls, communication to members, avoiding conflict of interest in decision-making, monitoring performance of service providers, defining the roles of trustees, defining the roles of service providers, having an effective performance measurement system and outsourcing specialised fund management functions.

### 1.6.4 Pension fund regulations

Pension fund laws prescribe the registration, administration and operations of pension funds. In terms of operational efficiency, pension fund regulations relate to the regulation of compliance costs, limitation of the number of trustees, fees charged by service providers, taxation of pension benefits, regulatory levies, regulatory meetings, risk based supervision and financial reporting.
1.6.5 Investment strategy

The investment strategy used by a pension fund results in the investment mix between various investment options (Stanko 2002; Asebedo and Grable 2004). In the present study, the elements of investment strategy that will be related to operational efficiency include: investment regulations, liability insurance for investment decision makers, independent performance appraisal, investment policy, discretion to investment managers and maintaining a risk management policy.

1.6.6 Pension fund ethics

Gifford (2004), Walsh, Tzelepis and Stojanovski (2007), Yermo (2008a) and OECD (2007a) emphasise the need to make ethical decisions in a pension fund in order to achieve better results. In this study, ethics has been captured using the following elements: confidentiality in trusts matters, sponsor’s influence, honesty in information sharing, avoiding conflict of interests with the service providers, avoiding bias in decision-making and proper utilisation of authority.

1.6.7 Pension fund risk

Pension fund risk is a major issue of concern during times of bearish financial markets and numerous uncertainties (Maurer, Mitchell and Rogalla 2009; Bikker et al. 2009; Rauh 2006). In this study, pension fund risk has been captured along the following dimensions: default risk from employers and employees, stock market risk, operational risks and liquidity risks.

1.6.8 Pension fund design

Pension funds operate under the defined benefit or defined contribution designs (World Bank 1994; Besley and Prat 2005; Andrews 2006), but hybrid
designs are also possible (Kerrigan 2008). In the present study pension fund
designs are classified as either defined benefit or defined contribution.

1.6.9 Pension fund size

Different studies (Bikker and Dreu 2009; Ahmad 2009; Caswell 1976; Mahon
and Donohoe 2006) distinguish between large and small pension funds by
using the number of members as a measure of size. The same measure was
adopted for the present study.

1.6.10 Age of the members

Augusztinovics (2002) and Bongaarts (2004) documented differences in
financial performance of pension funds with young and older members. The
current study will investigate this aspect by regressing DEA efficiency scores
with the average membership age in the pension funds.

1.7 METHODOLOGY OF THE STUDY

1.7.1 Research paradigm

Saunders et al. (2009), Weber (2004), Guo and Sheffield (2006), Sekaran
(2003) and Westland (2004) identified a continuum comprising two main
research paradigms, namely the positivistic paradigm and the
phenomenological paradigm. The qualitative design involves items that are
not explicitly measurable whereas the quantitative design involves variables
that are quantifiable (Sekaran 2003). The present study measures efficiency
and relates it to the hypothesised independent variables that are all
quantifiable. A quantitative positivistic research design was therefore adopted
for this study.
1.7.2 Sampling design

A sample of 749 pension funds was drawn from a population of 1679 pension funds registered with the Kenyan Retirement Benefits Authority (RBA). The sample selection was based on the criterion that these pension funds should have been in existence within the period 2001 to 2008. Seven hundred and forty-nine (749) questionnaires were mailed to the trustees of these pension funds. Three hundred and sixty-two (362) usable questionnaires were returned, which translates into a response rate of 48.3 per cent.

1.7.3 Measuring instruments

Except for financial efficiency, self-constructed instruments based on secondary literature reviews were used to measure the variables in the conceptualised model. Appropriate steps were taken to ensure the validity and reliability of the measuring instruments used in this study.

1.7.4 Data analysis

The data analyses were conducted by using the STATISTICA Version 9.0 (2009) and LISREL Version 8.8 (2008) statistics computer software programs. Financial (DEA) efficiency scores were calculated by using the Frontier Analyst Version 4.10 (2008) computer software program.

1.8 OUTLINE OF THE STUDY

The study is organised as follows:

Chapter one outlines the scope of the study, the problem statement, the objectives, hypotheses and methodology.
Chapter two provides a detailed overview of pension funds from an historical perspective, the present situation, and concludes by detailing the forces likely to shape the pension fund industry in the future.

Chapter three addresses governance as a determinant of pension fund efficiency. The chapter specifically expounds on fourteen codes of governance applicable to the pension fund industry.

Chapter four discusses pension fund regulations and their influence on operational efficiency.

Chapter five provides a literature review on two determinants of pension fund efficiency namely: investment strategy and managerial ethics.

Chapter six discusses the influence of pension fund risks, pension fund design, age of members and pension fund size on pension fund efficiency.

Chapter seven discusses the theoretical model for improvement of pension fund efficiency.

Chapter eight addresses the research methodology and presents preliminary results of the study.

Chapter nine reveals the empirical results of the study.

Chapter ten interprets the empirical findings, gives the major conclusions of the study and provides suggestions for further research.

1.9 SUMMARY

This chapter has expounded on the scope of the present study by identifying the problem statement, research objectives and the hypotheses that guided
the study. Additionally, the research methodology and outline for the thesis were given.

Chapter two provides a literature overview of pension funds.
CHAPTER 2

LITERATURE OVERVIEW OF PENSION FUNDS

2.1 INTRODUCTION

This chapter gives a detailed literature review of pension funds. It describes the historical development of pension funds, the nature of the operations of pension funds, the value of pension funds to the world economies, pension pillars, the pension fund taxonomy, the global pension crisis of the 21st Century and concludes by reviewing the attributes of pension fund efficiency.

2.2 HISTORICAL DEVELOPMENT OF PENSION FUNDS

Lindert (1994:6), Curtler and Johnson (2004:3), Guinan (2003:2), Langley (2006:1) and Newmann (2005:15) trace the earliest pension fund system to Germany. These authors credit former German Chancellor Otto Von Bismarck for enacting a compulsory savings programme for workers in large firms who were exposed to the socialism ideologies in 1889. Perotti and Schwienbacher (2008:7) state that the Bismarck pension fund system was financed through worker and employer contributions, attracted taxation incentives and paid retirement benefits once the worker reached the age of 65. According to Lindert (1994:8), pension fund contributions under this system were invested in financial securities. This system however had no provision for pension entitlement to personal representatives in case of death, it was mainly restricted to the civil servants and war veterans and many workers did not live to enjoy the retirement benefits as life expectancy was 60 years (Lindert 1994).

Perotti and Schwienbacher (2008:26) describe the Bismarck pension fund system as a “social security programme” defined as a “comprehensive
retirement programme covering many production workers.” The Bismarck programme was replicated at varying time periods in different countries, for example, Japan 1875, United States 1896, New Zealand 1898, Belgium 1900, Australia 1941, Belgium 1967, Canada 1966, Denmark 1964, Greece 1978 and United Kingdom in 1948 amongst others (Perotti and Schwienbacher 2008).

The development of pension fund systems was a reaction to the political and economic shocks affecting the world (Perotti and Schwienbacher 2008:2; Clark 2003:3; Ambatchsheer 2007a:12) during the Victorian period (five decades prior to the First World War). During this period, prices were reasonably stable, with long-term rental contracts and general stability in the financial and political systems in the West and hence there was no need for social or retirement security. The First World War caused an inflationary shock, which acted as a catalyst to the changes that were later effected in the financial systems. The resultant loss of jobs, suspension of various currencies and the stock market crisis of 1929 prompted governments to create policies to cater for their working populations which consequently led to the formation of the modern pension fund systems (Perotti and Schwienbacher 2008).

As pension fund systems developed, economic and political shocks affected their sustainability in different countries (Meyer 2004:210; Newmann 2005:6) and so the only institutions that could be trusted to secure retirement funds were the governments. In Germany, the Bismarck system was transformed to a Pay as You Go (PAYG) scheme in 1957 funded by the state with France and Finland following suit (Meyer, 2004). In Africa, pension fund systems were developed after independence and the pension fund models that were being used by their colonial masters were adopted (Ahmad 2008:12).

2.2.1 Pension fund systems in Kenya

Pension fund systems in Kenya were first put in place after independence in 1963. The first post independent pension fund body, the National Social
Security Fund (NSSF), was established in 1965 (RBA 2000). Prior to reforms, the pension fund system provided for benefits once a worker retired on attaining the mandatory retirement age of 55 (RBA 2006). The guarantee was fixed as the worker's full basic salary throughout his life or that of the widow as the law did not envisage a situation where the wife would support the husband. This law was embodied in the NSSF Act and the Pensions Act (Cap 189).

The pension fund system in Kenya has been supervised by the independent Retirement Benefits Authority (RBA) since 2000, which oversees the 1997 RBA Act that brought about regulation, protection and structure to the pension fund industry. The RBA continues working to develop the industry and advise the government on pension policy reforms.

Kenya's pension fund system embraces four components namely the NSSF, Civil Servants Pension Scheme (CSPS), Occupational Retirement Schemes (ORS) and Individual Retirement Schemes. Overall the system is estimated to cover 15% of the labour force and to have accumulated assets of 18% of the GDP (Kakwani et al. 2006). The pension fund system covers an estimated 2 million workers leaving an estimated 5 million workers uninsured under any retirement scheme, of which at least 10% are at or near the retirement age (Kakwani et al. 2006).

2.2.1.1 National Social Security Fund (NSSF)

The NSSF in Kenya is a public provident fund (pays benefits as a lump sum) that covers an estimated 800 000 members in both the formal and informal sectors (Stewart and Yermo 2009:18). The NSSF contributions are mandatory for employees in firms with 5 or more employees, whereby members contribute 5% of their monthly earnings subject to a maximum of Ksh. 200 (US$ 2.7) that is matched by an equal contribution by the employer (Stewart and Yermo 2009). According to the Kenyan RBA, the employees are allowed to contribute more on voluntary basis to a maximum of Ksh. 1,000 (US$ 13.3)
per month. The old-age pension benefits are available to those aged 55 who have retired from active employment (Stewart and Yermo 2009).

2.2.1.2 Civil Servants Pension Scheme (CSPS)

The CSPS covers civil servants, judiciary employees, military personnel, armed forces, teachers and parliamentarians (Kakwani et al. 2006). The scheme provides benefits including old age pension, injury and compensation, survival benefits, dependency pension for 5 years after death of a pensioner, disability pension (military only) and gratuities in the form of lump sums. The CSPS had 125 000 members by December 2006 and the government expenditure amount to Ksh. 12.5 billion (US$ 178.6 million), about 4.7% of the government budget (Kakwani et al. 2006).

2.2.1.3 Occupational retirement schemes (ORS)

Occupational retirement schemes (ORS) were established by employers to act as vehicles for accumulation of retirement savings for the employees (RBA 2000). The ORS can be operated on defined benefit or on defined contribution ideologies but in Kenya the defined contribution is the predominant design (RBA 2008). Although there is no compulsion for employers to set up the ORS, once established, the fund falls under the mandate of the Retirement Benefits Authority and must comply with the laid down regulations. The ORS are estimated to cover an estimated 3% of the working population in Kenya (RBA 2008).

2.2.1.4 Individual retirement schemes (IRS)

Individual retirement schemes (IRS) are run by financial institutions mainly insurance companies which provide an avenue for saving where employers do not have their own schemes, and for workers who wish to make additional voluntary contributions (RBA 2009). By the close of 2009, RBA had registered
21 IRS that covered an estimated 2% of the working population. RBA (2009) points out the gap filled by the IRS where the number of employees is so small forming an ORS would not be financially viable.

2.3 NATURE AND OPERATIONS OF PENSION FUNDS

A pension fund is a legally separated pool of assets bought with contributions to a pension fund for the exclusive purpose of financing pension fund retirement benefits (OECD 2008b:3; Yermo 2002:6). A distinction is however often made between a pension fund and a pension plan (OECD 2008b). A pension plan has a legally binding contract with a clear retirement objective that may be part of the employment contract or may be required by law. Pension plans may offer additional benefits such as disability, sickness and survivors’ benefits (Yermo 2002). A pension fund can be incorporated to manage pension assets of various pension plans. In Kenya however, each pension plan is allowed to manage only pension assets of their own (RBA 2008:9). Thus pension plans are also called pension funds or retirement income schemes in Kenya.

The pension fund members have a legal or contractual claim on the assets of the fund (Yermo 2002:9). Pension funds are therefore trusts with legal capacity to invest and manage beneficiary funds with diligence and stewardship.

Pension funds collect and accumulate contributions from employees and their sponsors (employers who establish the pension scheme), invest the contributions and hold the proceeds in stewardship for the benefit of the members on retirement (OECD 2004:4; EBRI, 2004). OECD further shows that although both the employee and the employer contribute to the pension fund, the employer is not obliged to contribute any fixed amount. The contribution rates by the sponsor and the employee are listed in the pension fund constitution and they differ from one employer to another.
When an employee retires, his or her pension benefits may be paid out in a lump sum or may be paid in monthly instalments or there may be an initial lump sum on retirement and consequent monthly instalments (Almaric 2006: 443; World Bank 2005: 116; Scott, Watson and Hu 2009:15; Yogo 2009:3). The payment regime depends on the stipulations of the trust covenant (pension fund constitution), the pension fund design, the contributions made by both the employee and the sponsor during the worker’s membership in the fund and the returns generated by the pension fund (Almaric 2006).

Workers in Kenya are forbidden to withdraw retirement benefits from their employer’s pension funds when they change jobs or before they reach the retirement age, except those in ill health or those who suffer permanent disability (RBA Act 1997, as cited in Nyakundi 2009:13). The implication is that workers who leave their job before the retirement age of 55 cannot access their employer’s contributions but may withdraw their own contributions. The employer’s contributions may however be transferred to another scheme of the employee’s choice. Retirement savings contributed by both the employee and the sponsor can also be used as collateral when buying a home.

In summary, pension funds are distinct entities that are neither commercial corporations nor state owned enterprises. They therefore do not compete for customers or market share and they are single product entities as defined by the pensions law to provide members with financial security throughout their retirement life (Asher and Nandy 2006a:9). Pension funds do not seek growth to pay dividends but instead they are evaluated on the basis of value adding to the members and long-term solvency and they limit risk by segregating their assets from those of the sponsoring entities.

2.3.1 Pension fund structure

To fully understand how pension funds operate, a typical organogram (Figure 2.1) is provided. Figure 2.1 shows that the ultimate authority of the pension fund vests with the members and the sponsors who appoint the board of
trustees that manages the pension fund affairs. The board of trustees further nominate custodians, fund managers, auditors and fund administrators to help run the pension fund. The responsibilities of each office bearer are discussed in the following sections.

FIGURE 2.1: TYPICAL ORGANOGRAM OF A PENSION FUND

Source: Researcher’s own construct

2.3.1.1 Members

Members are the most important constituents of any pension fund (RBA 2009) since the pension funds are formed to provide them with an income when they are no longer earning a regular income from their employment. According to RBA, membership to the pension fund is based upon an agreement between the employees and their employers. According to OECD (2004:6), members can be classified as active (employees actively accruing benefits in the fund) or deferred (former employees with vested accrued benefits). OECD (2004) further distinguishes between members and beneficiaries by defining beneficiaries as members that are receiving or presently entitled to receive a benefit or third parties such as spouses that may acquire certain rights under the pension fund deed upon death or incapacity of a member.
The National Treasury in South Africa (2004:53) lists four measures to protect the interests of pension fund members. The four measures are:

- Benefits must be adequately pre-funded;
- Members’ benefits must be kept in the pension fund and must accrue interest if a member leaves employment of the sponsor before the retirement age. The member has a right to transfer the benefits to another pension fund of their choice;
- Members’ retirement benefits must not be deducted to recover any loans due to the sponsor or any other party, and
- Information regarding costs, contributions and benefits must be disclosed to members on a regular basis.

2.3.1.2 Sponsor

According to RBA (2008), the sponsor (employer) should make a board resolution to start a pension fund. The sponsor thus starts the pension fund with an understanding of the financial obligations involved. Before application for registration, RBA (2008) advises sponsors to conduct an actuarial review to determine the appropriate contribution levels, design and financial viability of the fund. Sponsors must then have an irrevocable trust deed prepared by a legal expert where after they apply for registration with the RBA (RBA 2008). Operating a pension fund without a valid certificate from RBA is a criminal offence punishable by a fine of Ksh. 500,000 (US$ 6700) or two years imprisonment (RBA 2000). The sponsor is required to support the fund through timely payment of the pension contributions on a continuous basis.

2.3.1.3 Board of trustees

The retirement Benefits Authority (RBA) defines trustees as “classes of persons appointed under an irrevocable trust to hold the pension fund in trust for the benefit of the members” (RBA 2008:4). Under the RBA Act, the sponsor nominates two-thirds of the trustees in case of defined benefit funds


(⅓ is nominated by the members). In the case of a defined contribution fund, the sponsor nominates half (½) of the members to the pension board of trustees (members nominate the remaining half (⅓). This implies that in the defined benefit funds the sponsor exercises greater influence on pension fund matters than in defined contribution funds. The RBA Act further allows a sponsor, who does not want to appoint member trustees, to nominate a corporate trustee (corporate body) to run the pension fund affairs, but all in all, the members must vote for the trustees.

According to the OECD (2002:8), pension fund trustees’ should be accountable to the members, beneficiaries and the regulating authorities. The OECD suggests that trustees may also be accountable to the sponsor to commensurate with the responsibility as the benefit provider.

RBA (2008:4) lists the following duties of the trustees:

- to administer the pension fund in line with the trust deed and rules which must be within the provisions of the RBA Act;
- to keep proper books of accounts and allow the beneficiary and the sponsor to inspect them on demand;
- to give the members information and explanations as to the investments and dealings with the trust property;
- to liaise with the service providers who are important players in the running of the pension fund;
- to assume the duties of a trustee as may be imposed by the RBA from time to time during the period of trusteeship;
- to uphold the principle of collective responsibility as the law does not distinguish between active and passive trustees. The trustees are fully liable to the beneficiaries for any loss that occurs even where the management is delegated to third parties;
- to be bound by the decisions of the trust. Unless stated otherwise in the trust deed all decisions of the trustees must be made by all of them. If the rules provide for a majority decision, then that decision binds the minority;
- to be jointly and severally liable for the decisions of the trust (an aggrieved party may sue one, some or all of the trustees for redress);
- to act in the beneficiaries best interests;
- to exercise power in accordance with its purpose and exercise it in an impartial manner;
- to prepare, maintain and adhere to a professionally prepared statement of investment principles (investment policy); and
- to ensure that the pension fund at all times comply with the pension law as expounded in the RBA Act.

The National Treasury in South Africa (2004:59) lists the rights of the trustees as:

- to be given reasonable paid time off work to attend to trustee work including trustee training;
- not to be victimised by the employer if they take decisions which are not in their employer’s best interests and
- remuneration for their services.

2.3.1.4 Custodians

Section 22 of the RBA Act (2000) mandates trustees to make use of RBA registered custodians who are usually commercial banks. The responsibilities of the custodians under the RBA Act (2000) include:

- holding all the assets of the pension fund including cash, securities, title documents and deeds;
- settling all the transactions of the pension fund in accordance with the instructions received from the manager;
- receiving and recording all the incomes due to the pension fund and crediting them to the fund’s bank accounts;
- providing accurate and timely periodic reports to the trustees; and
- providing accurate and timely periodic reports to RBA on the assets held and the transactions executed.

According to OECD (2002:7), the pension fund assets should be legally separated from those of the custodian. In other words, the custodians should not use the assets of the pension fund in any way (OECD 2002). They should just hold them in stewardship of the stakeholders.

2.3.1.5 Fund administrators

Fund administrators are charged with the responsibility of handling all administrative affairs of the pension fund, ensuring that the pension fund is run in accordance with the trust deed and rules and ensuring that the fund is run within the ambit of the law (RBA 2008:7). The role of pension fund administration may be performed in-house by the staff of the sponsor, by the trustees or by contracted professionals with proven competence and capacity to perform the role (RBA 2008).

2.3.1.6 Fund managers

Fund managers are responsible for advising the trustees in the making of investment decisions of the fund (RBA 2008:10). According to Ahmad (2008:8), fund managers have the responsibility to:

- monitor and manage investments (stocks, bonds and real estate) to meet the investment goals and objectives of the pension fund;
- assist the trustees to prepare a statement of investment policy in line with their expected risks and returns;
- report to the trustees the periodic returns generated by the pension fund;
- ensure adequate, affordable and sustainable benefits to contributors;
- secure safety and security of funds;
- ensure adequate liquidity to pay all pension benefits as and when they fall due; and
achieve optimal trade-offs of risk and return through strategic asset allocation.

2.3.1.7 Auditors

Pension fund trustees should appoint auditors who should be independent from the pension entity, the trustees and the sponsors (OECD 2002:7). The main duty of the pension fund auditors is to provide assurance to the members that the reported pension fund assets and liabilities exist, are properly valued and are correctly reported by the custodians and the fund managers (RBA 2008:12). The auditor should report promptly to the trustees and, if trustees fail to take action, to the regulating authority whenever significant negative effects on the financial situation or administrative aspects of the pension fund are noted from the point of view of the custodian, administrators or the fund managers (OECD 2002:7).

Specific duties of the auditor under the RBA Act (2000) include:

- reviewing the internal control system and advising the trustees on how to improve on it;
- providing an audit report for presentation to the members at the annual general meeting;
- ensuring that benefits and other payments to third parties are properly computed;
- reviewing the internal control system and advising on its suitability to prevent and detect the occurrence of errors and fraud; and
- providing assurance on the valuation of assets and liabilities at the balance sheet date.

2.3.1.8 Other consultants

RBA (2008:7) mandates pension funds to appoint other consultants such as lawyers and actuaries when the need arises. According to RBA (2008),
actuaries play an advisory role when the pension fund is being set up in addition to conducting periodic reviews on the funding status of the pension fund. Legal services may be enlisted during the setting up of the trust deed and the rules of the scheme.

2.4 PENSION FUND TAXONOMY

Developing a pension fund nomenclature is a difficult task as different countries classify pension funds differently. There are however similarities in several concepts of classification between countries. The literature indicates that the distinctions are generally made with regard to (1) public versus private pension funds; (2) occupational versus individual funds, (3) funded versus unfunded, and (4) open versus closed funds.

2.4.1 Public and private pension funds

Yermo (2002:17-18) suggests a distinction between public and private pension funds. According to Yermo (2002), the six characteristics of a private pension fund are (1) membership by private sector workers, (2) management by private sector institutions, (3) financial flows not being controlled by the general government, (4) a large proportion of assets invested in private sector securities, (5) regulated by private law and (6) guarantees being offered by private sector institutions. Pension funds that do not fit this description are public in nature (Yermo 2002).

2.4.2 Occupational and individual pension funds

Occupational pension funds are linked to the employment contract between employer and employee (Yermo 2002:3; Guariglia and Sheri-Markose 2005: 474). The key features of occupational pension funds are that contributions are indexed on the level of earnings of the employees; the sponsor contributes to the funds but the employees may also be required to contribute; they may be mandated by the law or by collective bargaining agreements or
they may be voluntary where employers establish the schemes on their own accord and in view of their ability and willingness to contribute to the fund (Yermo 2002).

Individual pension plans are not linked to any employment contract rather individuals voluntarily contribute to them (Yermo 2002:3; Clark and Mitchell 2005:56). The schemes are therefore open to persons in both formal and informal employment although some of them may restrain membership to specific associations or trade (Guariglia and Sheri-Markose 2005:475).

2.4.3 Funded and unfunded pension funds

Yermo (2002:4-5) defines a funded pension fund as one that has pooled assets that can be used to finance the payment of pension benefits. The level of assets acceptable to fund the pension liabilities differs from one country to another but ideally a funding ratio of 100% is considered ideal.

Unfunded pension plans are those that do not accumulate assets of the members and benefits are paid from the immediate contributions and other incomes of the sponsor. The term frequently used for unfunded pension plans is the “Pay-As-You-GO” (Yermo 2002:5; Besley and Prat 2005:16).

2.4.4 Open and closed pension funds

According to Hughes and Stewart (2004:21), pension funds can be open or closed. An open pension fund supports at least one pension plan with no restriction on membership while closed pension funds support only pension plans that are limited to certain employees. They further sub-classify the closed funds to a single employer (membership restricted to employees of a certain employer), multi-employer (membership can be drawn from two or more employers), related members (membership is reserved to certain related entities) and individual pension funds (membership is voluntary).
2.5 PENSION FUND PILLARS

The concept of pension fund pillars was first documented by the World Bank in 1994. In the World Bank’s view old age poverty can only be eliminated by setting specific foundations (pillars) on which governments should anchor their pension systems. The foundations are meant to spur pension fund contributions, enhance growth and seek increased coverage of the general population. The World Bank mentions three pillars namely public retirement savings, occupational retirement savings and personal retirement savings.

2.5.1 Public retirement savings (PRS)

Public retirement savings refer to the basic retirement scheme established by the state to which every employee and employer should contribute. The World Bank (1994:240) refers to it as a universal state pension. Yermo (2002:16) describes PRS as a relatively small, public managed Pay-As-You-Go system that is usually structured on a defined benefit design where the benefits payable are fixed.

The enforcement of PRS consumes much of the taxpayers’ expenditure and contributes towards intergenerational inequity since taxes paid by the current generation are used to finance pension payments to the previous generations (Simpson 2003:14; Holzman 1998:14). The World Bank (1994) therefore views PRS as an anti-poverty pillar that is non-contributory and guarantees a minimum income in old-age.

2.5.2 Occupational retirement savings (ORS)

The World Bank (1994:328) encourages employers to set up retirement schemes for their employees and propose that employees make mandatory contributions to some public pension fund. ORS are “privately managed pension funds based on a mandatory defined contribution design” (Yermo 2002:16). Due to the mixture of the forced and voluntary savings, ORS guarantees benefits to the contributors and in addition pays the most benefits
to those who contribute most (Willmore 2000:3). In the United Kingdom, ORS are composed of occupational pension schemes with both defined benefit and defined contribution designs.

2.5.3 Personal or voluntary retirement savings (VRS)

Yermo (2002:16) describes this pillar as a foundation of personal pension plans in the form of saving and annuity schemes. Participation in VRS is optional and the amount of savings is not fixed (OECD 2005:2). Guariglia and Sheri-Markose (2005:472) compare the VRS to individual retirement accounts where contributions are accumulated in a fund. Guariglia and Sheri-Markose (2005) suggest that VRS are operated on the defined contribution ideology and are therefore flexible.

**TABLE 2.1: OVERLAP BETWEEN THE PENSION FUND TAXONOMY AND PENSION FUND PILLARS**

<table>
<thead>
<tr>
<th>Pension provision</th>
<th>Pillar served</th>
<th>Public or private?</th>
<th>Occupational or individual?</th>
<th>Funded or unfunded?</th>
<th>Open or closed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social security offered by the State (e.g. NSSF)</td>
<td>Public retirement savings (PRS)</td>
<td>Public</td>
<td>Occupational</td>
<td>Unfunded</td>
<td>Closed</td>
</tr>
<tr>
<td>Occupational retirement fund</td>
<td>Occupational retirement savings (ORS)</td>
<td>Public or private</td>
<td>Occupational</td>
<td>Funded or unfunded</td>
<td>Closed</td>
</tr>
<tr>
<td>Voluntary retirement savings fund</td>
<td>Personal or voluntary retirement savings (VRS)</td>
<td>Private</td>
<td>Individual</td>
<td>Funded</td>
<td>Open</td>
</tr>
</tbody>
</table>

Source: Researcher’s own construct

In summary, the pension fund types are devised to fulfil the objectives expounded with regard to pension fund pillars. In other words, ORS fulfils the objectives of the second pillar while VRS fulfils the objectives of the third
pillar. Table 2.1 shows the overlap between the taxonomy and the pillars. It shows that pensions are provided on three pillars namely; PRS, ORS and VRS and are fulfilled through social security contributions, occupational contributions and voluntary retirement respectively. The table further discloses that the PRS pillar is served by public, occupational, unfunded and closed pension fund. On the other hand, the ORS pillar is served by public or private closed pension funds that could be funded or unfunded. Lastly, the VRS pillar is served by private, individual, funded and open pension funds.

2.6 THE ECONOMIC CONTRIBUTION OF PENSION FUNDS

Pension funds contribute directly and indirectly to the economic growth of countries worldwide. Pension funds add value to the world economies through direct contribution to the GDP, accumulation of savings, financial market development, reducing old-age poverty and acting as consumers of financial services (Clark 2005:8; Heijdra, Ligthart and Jency 2006:356).

2.6.1 Contribution to GDP and investment

According to OECD (2006:1), the ratio of total OECD pension fund assets to GDP increased from 81.9% to 84.1% in 2004. In monetary value, pension fund assets grew from US$ 5.9 trillion in 1994 to US$ 15.6 trillion in 2004, representing a compound growth rate of 10.2% per annum. According to Corbo and Schmidt-Hebbel (2004:250), the ratio of the pension fund assets to the GDP grew by 46% in the Chilean economy over the period 1981 to 2001. In Kenya, pension fund assets account for 30% of the GDP (Odundo 2008).

According to Wyatt (2007), pension fund assets amounted to 100% of the GDP in Australia, 80% in Canada, 10% in France, 12% in German, 36% in Hong Kong, 50% in Ireland, 75% in Japan, 130% in Netherlands, 147% in Switzerland, 98% in the United Kingdom and 108% in the United States of America in 2006. Figure 2.2 depicts these statistics.
Pension funds and life insurance companies increase savings in countries (Impavido Gregorio, Musalem and Alberto 2000:12; EBRI 2007b). These savings are often invested in infrastructure development. In Chile for example, pension funds increased domestic savings from 0.8% to 4.6% of GDP every year from 1981 to 2001, thus boosting the overall investment rate to 12% of the GDP (Corbo and Schmidt-Hebbel 2004:258-259). According to Dovi (2008:12), pension fund growth has led to an increase in savings in Africa in the last decade. The increase in domestic savings between 1998 and 2007 ranged from 17.8% to 22.1% in the Sub-Saharan Africa and 21% to 30% in Northern Africa. The continuous increase is depicted in Figure 2.3.

2.6.2 Financial market development

Pension funds exert both quantitative and qualitative effects on financial markets (Davis 2006:5-6; Yermo 2005:9). Quantitative effects relate to asset allocation decisions while qualitative effects relate to corporate governance decisions. Pension funds increase offshore investments, which grow international financial markets thus contributing to greater stability of the economies as a result of increased capital flows (Davis 2006). In addition, pension funds increase equity market capitalisation (Catalan Impavido and Musalem 2000:22) and bond market capitalisation (Impavido Musalem and Tressel 2003:9).

Raddatz and Schmukler (2008:1) suggest that since pension funds face regulatory requirements and are required to allocate more funds to domestic investments, they are the most important institutional investors within a country. Furthermore the pooling of pension fund assets boosts the stock market and increases the stock market's liquidity (Catalan 2004). As holders of large amount of bank deposits, government paper and short-term assets,
Pension funds are important institutions that control the flow of funds in the financial markets (Raddatz and Schmukler 2008:10).

Catalan (2004:12 and Davis (2006:6) suggest that pension funds contribute to the growth of the financial markets through the corporate governance channel. Pension funds lobby for enactment of pro-investor laws, increase intensity of their monitoring activities thus exposing corporate crimes and are capable of initiating legal claims against managers when crimes are detected (Catalan 2004). Strengthening pension funds can therefore shape corporate governance principles applicable to the corporations as to where they invest their money.

In Latin American countries pension reforms contributed to the growth of capital markets and resulted in these economies opening their markets to trade and foreign investments and reducing their national budget deficits (Andrade, Farrell and Lund 2007:4).

2.6.3 Old age income security and poverty alleviation

The main reason for the existence of pension funds is the provision of basic income security and poverty alleviation especially to the elderly (Holzman and Hinz 2001:15; Aon 2005a:3). Pension funds contribute significantly to the reduction in old-age poverty since a large proportion of the incomes of retirees is derived from the pension funds Kakwani et al. (2006:24-25). According to the Alliance Global Investors (2007), 75% of the elderly population rely on pension income in South Africa, while 82% of the retirees depend on pension income in the United States of America. Kakwani, Sun and Hinz (2006:4) report that retirement income accounts for 68% of the total income of retirees in Kenya. Barrientos (2007:4) therefore urges governments to encourage the development of stable pension systems. In the Sub-Saharan Africa, 85% of the aged population lives in abject poverty because less than 5% of the labour force is covered under the formal pensions system (Palacios and Pallares-Millare 2000:18).
Further support for the importance of pension funds in the alleviation of poverty comes from Stewart and Yermo (2009:5) who report that:

- Pensions reduce the poverty gap ratio by 13% in South Africa and increase the income of the poorest 5% of the population by 50%;
- In South Africa, families receiving a pension are 11% less likely to be poor;
- In Tanzania where there is no pension, out of 146 000 children orphaned by HIV/AIDS only 1000 attended secondary school in 2007 because their grandparents could not afford the required school fees; and
- In Zambia, a pilot cash transfer to older people caring for orphans improved school attendance.

Moreover, pensions increase older people’s access to services such as health care and reduce their dependency on the younger generation (Help Age International 2006:2). Pensions can therefore play an important role in breaking intergenerational poverty cycles and thus increase the life expectancy of the elderly generation (Help Age International 2006).

2.6.4 Consumers of financial services

All over the world, pension funds are mandated to use financial services of fund administrators, custodians, auditors, actuaries and fund managers (Asher and Nandy 2006a:3; Willmore 2005:4-5). Given the large size of pension fund assets relative to the GDP of various countries, pension funds are major consumers of the financial services offered by banks, insurance companies and the stock market brokers.

2.6.5 Controlling government expenditure on pensions

The development of funded public pension systems reduces government expenditure on the PAYG pension systems (Stewart and Yermo 2009:6) thereby directing the funds to other uses. The reform of unsustainable PAYG
pension systems can help reduce the fiscal burden that such a system places on the population and indeed avoid burdening the future generations since pensioners will be paid based on what they have contributed in addition to their employer’s shares (Stewart and Yermo 2009).

2.7 PENSION PROVISION IN THE 21st CENTURY

Pension funds have grown over the last three decades into a huge global block of capital that has dramatically changed the investment and financial management practices of firms and households significantly (Johnson and Graaf 2009:2). According to Johnson and Graaf (2009), the huge investments held by pension funds were significantly reduced by the global pension crisis. Additionally, the World Economic Forum (2008) forecast the forces that are expected to shape the future of the world pension systems in the 21st Century and beyond. The following section expounds on these concepts.

2.7.1 The global pension crisis

Traditionally, pension systems were operated on a Pay As You Go (PAYG) basis which meant that workers did not have to contribute to their pensions but would be guaranteed pension benefits on retirement (Financial Times 2003:6; 2003a). This system was sustainable in the last four decades since the number of workers far outweighed the number of retirees (Pecchenino and Polland 2005:450). As the population ages, life expectancy increased and the cost of living rose. However, the PAYG system became unsustainable and prone to political manipulation, and the benefits paid to retirees decreased.

Describing the pension crisis in developed countries, Bettendorf and Heijda (2006:2390) note that the percentage of the elderly population (65 years and over) over the working age (15 – 64 years) was 12% in 1950, 21% in 2000 and predicted it to increase to 44% in 2050, thus threatening the sustainability of the PAYG system.
According to Sinn (2004:1348), the PAYG system contributes to intergenerational inequity since it merely transfers wealth from today's workers to today's retirees. In this way, according to Weikard (2004:362-364), the PAYG pension system subjects the present workers to the responsibility of paying pensions (taxes to support current retirees) while at the same time taking responsibility for the future generations (current child care). This creates a cycle that does not guarantee returns to the ageing population. In addition, the system can only be operated by governments since private enterprises cannot be trusted to be in operation when the population gets to retirement age (Sinn, 2004).

Summarising the problems created by the PAYG system in Sweden, Sunden (2000:5) reveals a decrease in real pensionable wage as the flat pension guaranteed by the state was not indexed to inflation; an unsystematic and inequitable distribution of contributions through taxes and benefits since contributors contribute for longer periods than they earn the benefits; and labour distortions which increases pension expenditure.

Pecchenino and Polland (2005:458) reported that the PAYG system had significant public expenditure in the G7 countries and with the increase in the number of retirees however, the system will wane in the long-term leaving behind frustrated retirees and huge budget deficits (Pocchenino and Polland 2005). In Uganda, the PAYG system caused increased budget constraints, the local government and the army could not afford the pension benefits and wages could not be increased without raising pensions disproportionately (Herbertsson 2001:5).

To address the global pension crisis, OECD (2009a:98) advocates for reforms in the pension systems to make them fully funded and hence make the PAYG funds extinct. The OECD argues that by funding the pension systems, workers will be saving for their own retirement incomes and will therefore eliminate intergenerational inequity, reduce old-age dependency ratios and remove excessive pension expenditure on the part of the World governments. OECD therefore suggests contributory pension systems that increase the
replacement rate (ratio of retirement income to pre-retirement income). To achieve this objective, pension funds must be operationally and financially efficient.

2.7.2 Forces shaping the future of pension systems

The World Economic Forum (2008:10-12) classifies the variables that are likely to shape the future of the world pension systems in two groups namely macro factors and stakeholder forces. The macro factors include demographic shifts of the population since life expectancy is increasing as a result of better medical and living conditions; global economic performance and investment returns; income and wealth distribution in the emerging markets; changing patterns of infections and chronic diseases; climate change and environmental degradation and urbanisation.

Stakeholder forces, on the other hand, include changing attitudes of individuals toward retirement; changing roles in governments in social welfare since many governments are moving away from the PAYG pension systems; changing roles of employers in social welfare as employers now recognise the critical role of human capital in production; changing roles of families in social welfare since many households are working towards reducing old age poverty; health care innovation and regulation may increase the life expectancies; and financial innovation and regulation that may lead to decreased losses due to stock market failures. All these forces, combined with the importance of pension funds as reviewed above, emphasise the need to explore efforts to improve the efficiency of pension funds. Fund efficiency and the attributes of such efficiency are therefore reviewed in the next section.

2.8 PENSION FUND EFFICIENCY

The Canadian Treasury Board (2009:3) defines efficiency as the extent to which an organisation utilises its resources or inputs to synthesise its outputs in form of goods and services. Inputs refer to human, financial, equipment,
and material that are used to generate the goods and services that meet client needs. Efficiency is therefore visualised as the production of a desired effect with a minimum amount of effort or waste or the control of costs.

The Canadian Treasury Board (2009:5) further suggests that where the outputs or inputs of an organisation are difficult to quantify, efficiency should be determined based on whether controls, operational processes and work methods are appropriate for minimising resource inputs in the delivery of required goods and services, or maximising output with given resources. According to Baker et al. (2005:181), the requirement for efficiency lies in the management’s ability to determine whether the level of efficiency achieved meets an acceptable standard and also in comparing efficiency levels before and after a corrective action. They view the most efficient organisations as those with the simplest well-defined functions.

Pension fund management needs to be efficient because they have administrative responsibilities, they make decisions regarding entitlements and benefits and ensure that the long-term obligations are met in the context of risk and uncertainty (Clark 2003:3; Ambatchsheer, Capelle and Scheibelhut 1998:20; Barrientos and Boussofiane 2005:295). This suggests that pension funds are like other business organisations in that they have goals and objectives to be realised and so their efficiency can be assessed on the basis of their ability to achieve these objectives.

Empirical studies suggest that good practices for efficient pension fund management include, strategic management of administration and investment costs, timely processing of pension benefits, improvement in the internal control systems, efficiency in the conduct of trustee meetings, timely reporting to members, decrease in compliance costs, increasing the rate of return, critical involvement of members in decision making, pension fund board autonomy from the sponsor, achieving appropriate funding levels, appointing service providers competitive and effective compliance with the pension law. These attributes are discussed in turn.
2.8.1 Attributes of pension fund efficiency

2.8.1.1 Strategic cost management

Investment management and administrative costs can significantly increase the cost of retirement security, lower the rates of return on investments and decrease the retirement benefits (Bikker and Dreu 2009:9; Bateman and Mitchell 2004:67; OECD 2009b:3). It is therefore important that pension funds manage their costs to achieve efficiency and by doing so add value to the pension funds of members.

According to the Canadian Treasury Board (2009:6), activities that show evidence of management’s efficiency in cost control include the undertaking of continuous reviews to eradicate redundant operations, the minimising of bureaucracy and the adoption of appropriate technology. These measures, according to the board, should result in the elimination of functions that merely increase administrative overheads. The board further recommends reducing administrative costs by contracting out when the benefits exceed the costs.

Furthermore, investment choices influence the investment costs incurred by pension funds (Tang and Mitchell 2008:6). According to Tang and Mitchell (2008), costs increase significantly when pension funds change their investment strategies in favour of actively managed equity funds at the expense of the low-cost equity index funds. They therefore urge pension funds to retain investment strategies that do not result in increased administration and investment costs.

In addition, Hustead (2008:6) indicates that administrative expenses differ significantly between the defined benefit and defined contribution pension funds with the defined contribution funds reporting far less management costs. Hustead (2008) therefore suggests that defined contribution schemes are more cost effective compared to their defined benefit counterparts.
Finally, the OECD (2009b:16) urges member countries to lower their pension administration and marketing costs by using competitive technology, governments’ disseminating information to pension fund members on behalf of the pension plans and making use of the most cost efficient service providers. OECD (2009b) therefore suggests internal practical measures to continuously reduce pension fund’s administration and investment costs in order to achieve fund efficiency.

2.8.1.2 Timely processing of pension benefits

The most important elements of pension efficiency are ensuring remittance of contributions to the pension board in a timely manner and ensuring timely and correct payment of benefits (Impavido 2002:28). Odundo (2008:6) concurs that pension funds should pay benefits on time to increase and maintain confidence in the retirement system, especially in Kenya.

2.8.1.3 Effective internal control systems

An effective internal control system is defined as "all the policies and procedures (internal controls) adopted by the management of an entity to assist in achieving management’s objective of ensuring, as far as practicable, the orderly and efficient conduct of its business, including adherence to management policies, the safeguarding of assets, the prevention and detection of fraud and error, the accuracy and completeness of the accounting records, and the timely preparation of reliable financial information" (ISA 400).

The aim of internal control is to achieve efficiency, avoid waste and to ensure reliability of the internal and external information generated by management.

With regard to pension funds, it is important that appropriate controls be instituted to ensure that all persons and entities with operational and supervising responsibilities of the fund act in accordance with the objectives set out in the pension entity’s by-laws and statutes (Asher and Nandy 2006b:26). These controls should cover all the basic organisational and
administrative procedures, including performance assessment, compensation mechanisms, information systems and processes and risk management procedures (Asher and Nandy 2006b:26). Effective internal control mechanisms protect the rights and benefits of pension fund members.

In recent times, pension fund management has been complicated by a myriad of factors including stringent accounting principles, strict compliance rules, new information technology developments and stern penalties imposed by governments for non-compliance (Bikker and Dreu 2009:21). Bikker and Dreu (2009) therefore call for adherence to appropriate internal control mechanisms, characterised by appropriate financial reporting in order to comply with pension fund legislation (Impavido 2002:19). Impavido (2002) suggests that control systems should be regularly audited both internally and externally to ensure pension fund accountability.

2.8.1.4 Efficiency in conducting trustee meetings

Pension fund efficiency is also determined by how efficiently trustee meetings are conducted. Clark and Urwin (2009:6) suggest that time, expertise and collective commitment of the pension fund trustees are important in respect of the timely achievement of goals and objectives of the pension funds. Time refers to the hours and days allocated to the management of tasks and functions and the attention paid to those tasks and functions by the trustees. Times as a resource overlaps with expertise since experts are expected to take less time in decision-making in their respective fields. Consequently, faster decision-making is an attribute of efficient pension funds.

Collective commitment, on the other hand, plays a critical role in determining the time spent in decision-making (Clark and Urwin 2009:8-9). Collective commitment is the shared ethic that governs either explicitly or implicitly how board members understand proper behaviour. This ethic ensures that the participants’ decision-making approach is not conflictual, thus saving on time spent in decision-making. Waste of time often occurs because of a lack of
focus in collective decision-making that originates from separate and insufficient interest of the participants, that is, they attend the meetings without prior preparation on the purpose of deliberation. Clark and Urwin (2002) therefore consider pension efficiency to be an end result of time management by the trustees.

In addition, time spent in decision-making is also influenced by the type of decision to be made. Clark and Urwin (2009:7) noted that operational decision-making is often more time-extensive than time intensive compared to tactical decision-making. Clark, Caerlewy-Smith and Marshall (2006:94) further observed that the time spent at the board decision-making process depends on the value of time and information. They therefore suggest that pension fund efficiency is influenced by the ability of trustees to spend time judiciously in making operational, tactical and strategic decisions. Clark and Urwin (2009:13) therefore advise pension fund trustees to be clear in their meeting agendas, apply proper leadership skills in the conduct of meetings, use sub committees to process complex decisions, summarise key details of the agenda before the meetings and be committed to the agenda by reviewing and researching the implications well before the meeting. These meeting guidelines can therefore greatly improve decision-making process and the achievement of pension fund goals.

2.8.1.5 Timely reporting

Pension funds should have clear reporting channels between all persons and entities involved in the administration of the pension fund (Asher and Nandy 2006b:27; Nyce 2005:13). This ensures the effective and timely transmission of relevant and accurate information to all the stakeholders.

Timely reporting further ensures compliance with the pension law creates stakeholder confidence and ensures that stakeholders get information on time for effective decision-making (Odundo 2008:8). Failure to issue pension fund reports (financial statements, member statements and actuarial valuation
details) in time is an indication of inefficiency that may attract litigation. Timely reporting is therefore an important indicator of pension fund efficiency.

2.8.1.6 Effective management of compliance costs

Compliance costs arise as a result of pension funds failing to comply with the pension law or when they have to abide by specific legislation that forces them to spend (Hustead 2008:9). Penalties paid to the regulatory authorities for non-compliance are avoidable. Efficient pension funds abide by the pension law and desist from fraudulent activities that may result in litigation (Qureshi and Mc Kay 2007:14). The elimination of avoidable compliance costs is an effective way of enhancing pension fund efficiency.

2.8.1.7 Increasing the rates of return

Pension funds’ investment performance is measured by the use of the rates of return reported on pension fund investments at certain time periods (Yang and Mitchell 2005:10; Coronado, Mitchell, Sharpe and Nesbit 2008:13). High returns are preferable since they enable the pension fund to maintain appropriate funding levels while avoiding extra contributions. Efficient pension funds thus maximise returns and are consequently well funded.

Pension funds are long-term investors because the obligations the funds are supposed to meet become due over the course of many years (O’Neill 2007:4). Good returns on investment are crucial to maintain and encourage sustainable pension payments. O’Neill (2007) recommends the inflation-adjusted returns on investment as the best measure of the rates of return and suggests that an efficient pension fund is one that achieves high inflation adjusted rates of return over the years of its existence.

Barros and Garcia (2006:3) depict the return obtained on assets of a pension fund as one of the most important determinants of efficiency. They argue that
high administrative costs of pension funds reduce returns on investments; thus lowering the fund’s efficiency. Pension funds should therefore increase returns and reduce costs to be efficient.

According to the National Treasury in South Africa (2004:22), competitive investment returns should at least correspond to the returns available on government bonds. The National Treasury also suggests that if the benefit is payable on retirement, the return payable on withdrawal should be adequate to match or “replace” the retiree’s income after leaving active employment. An efficient pension fund makes returns on investments that ensure adequacy of benefits to the retirees and achieve appropriate replacement rates.

Henon and Kanouse (2004:8) reported that in the United States declining rate of returns on investments created under-funding situations and forced employers to make substantial unbudgeted contributions to the pension funds. This would not have been the case if the pension funds took measures to increase their rates of return on investment (Henon and Kanouse 2004). Efficiency can therefore be increased if pension funds adopt practical measures to increase their rates of return while controlling their costs. Asebedo and Grable (2004:9) add that pension funds should aim at generating real financial returns over the long term in order to ensure pension payouts. A pension fund’s ability to generate returns over the long term is an indication of its efficiency.

2.8.1.8 Involving members in decision making

Robinson (2007:49) and Clark, Caerlewy-Smith and Marshall (2007:69) observed that the risks of poor administration arise where members of a pension fund are not involved in making important decisions affecting their pension funds. According to (Robinson 2007), neither the trustees nor the sponsors can effectively represent the interests of members. The trustees are however charged with the responsibility of interpreting technical decisions to members for their effective decision-making. Efficient pension funds therefore
involve their members in the making of long-term and risky decisions (Robinson 2007). CFA (2008:9) in their code of conduct for pension fund trustees concur that there should be regular full and fair disclosure of relevant information to members that should enable them to make appropriate decisions for the fund.

2.8.1.9 Pension fund board’s autonomy from the sponsor

According to Casanova (2001:52), the pension fund board should de-link its decision process from those of the sponsor. Casanova (2001) notes that by having the sponsor as a controlling force in the board, many decisions will be one-sided since the sponsor is a major stakeholder. This influence is noted more in Defined Benefit (DB) pension funds where the sponsor assumes the investment and operational risks. Casanova (2001) therefore suggests that efficient pension boards will have a greater level of autonomy from their sponsors.

Robinson (2007:26) concurs that although the sponsor plays a vital role in DB schemes with regard to decisions on the proportion of contributions to make to the pension fund, a separation of pension fund decisions from those of the sponsor should be encouraged due to the inherent conflict of interest that may arise.

The Kenyan RBA requires that the chairperson of the pension fund board be selected from amongst the trustees and expressly prohibits the Chief Executive Officer (CEO) of the sponsor company from acting as the chairperson. In addition, the RBA stipulates that once, formed by the sponsor, the pension fund assumes separate rights and even when the pension fund members quit employment with the sponsor, they can transfer the balances in their pension funds to the new pension funds that they join if the scheme is operated as a defined contribution fund. The Kenyan RBA therefore recognises that pension funds would optimise their decisions when the latter are not unduly reliant on the sponsor’s opinions.
A pension fund’s autonomy from the sponsor, called segregated governance by Yermo (2008a:19), has particular advantages, namely greater clarity in mandate and objectives; greater transparency and accountability, and attraction of qualified investment professionals. In order to achieve the segregated governance model, Impavido (2002:25) recommends that the appointment of pension fund board members be for a fixed period, that their removal should be allowed only with due cause; that the process of nominating them should be transparent; and that the nominating panel should include member nominated trustees as well as honest sponsor nominated members.

2.8.1.10 Achieving appropriate funding levels

The ratio of assets to the present value of vested funded liabilities is important for pension funds (Yang and Mitchell 2005:2; Weller 2005:3-4; Weller and Baker 2005:136; Mitchell and Smith 1994:279). Pension fund assets should exceed the pension fund liabilities estimated in present value terms to assure members that the pension fund is liquid and able to meet all its liabilities as and when they fall due. This ratio also affects the fund’s investment strategy, in that a well funded pension fund should be able to bear investment risks better compared to the under-funded plans. There is therefore a close association between a pension fund’s funding status and its performance. An efficient pension fund should therefore take all reasonable measures to increase the funding ratio.

Franzoni and Marin (2006:923) concur that under-funding is often an indicator of poor performance and a precursor to pension fund malpractices. Pension fund performance and funding are further related to structural and pension design features such as control and governance systems (Yang and Mitchell 2005:17) and the use of appropriate calculation methods for asset valuation and liabilities funding, such as actuarial techniques and amortisation rules (Asher and Nandy 2006a:28). These techniques and rules must be set up and
based on transparent and comparable standards as well as accurate actuarial assumptions to increase the efficiency of pension funds.

Under-funding is a serious concern for pension funds (OECD 2009b:3). Corporate pension funds at the largest companies in the United States of America were under-funded by US$ 409 billion at the end of 2008 while the funding ratios of Dutch pension funds had fallen to 85% from 1145% in the same period and in Canada the ratios had dropped by between 15 to 20%. In reaction to these statistics, the OECD (2009b) remarked that pension funds should have taken measures to check on their funding ratios to improve efficiency.

Recognising the need for pension funding, the Kenyan RBA mandates pension funds to maintain their funding ratios at a minimum of 80 % and 100% for DC and DB pension funds respectively (Odundo 2008:8). Where pension funds fall below the stated funding ratios they should detail the strategies they intend to put in place to remedy the situation.

2.8.1.11 Competitive appointment of service providers

Robinson (2007:30) suggests that in order to achieve pension efficiency, service providers must be appointed on a competitive basis. Competitive based appointment does not mean choosing the lowest cost provider but rather working with the provider who enables the pension fund to maximise value through increased benefits over the costs.

Competitive appointment also means avoiding service providers with potential for conflict of interest (Gekaros 2007:20; Clark and Mitchell 2002:8). In other words, service providers should be independent and, more particularly from the sponsor. Henon and Kanouse (2004:7) recommend that service providers should be appointed who offer additional services such as member education and administration services. They also recommend that pension funds integrate functions (for instance taxation and auditing) and have them
performed by the same provider where practical. The above recommendations could save pension funds time and money thus making them more efficient.

2.8.1.12 Compliance with the pension legislation

Pension fund legislation stipulates the following fiduciary obligations that trustees should comply with: communication with members; policies to ensure proper and accurate actuarial valuations; to ensure that contributions are received on time; the prudent investment of the pension fund’s money; timeous payment of accurate benefits in accordance with the terms of the fund and the law; and how to ensure that the pension fund is appropriately funded. An efficient pension fund is successful in complying with the applicable legislative framework.

In addition, Steele (2006:45) asserts that pension fund efficiency can be gauged by how successful the fund is in implementing regulations on time based reporting; ensuring that contributions are collected from sponsors and members; filing annual information returns; making documents available to the regulators for inspection; and providing member statements on time.

2.9 SUMMARY

Chapter 2 reviewed the historical development of pension funds from the Bismarck system of 1889 to their current status. The nature, types and the attributes of fund efficiency were reviewed. The review showed that the pension system in Kenya is anchored on three pillars, namely public retirement savings (applied through the NSSF), occupational retirement savings and voluntary retirement savings. The reviewed also showed that, despite their enormous contribution to the economies of countries, pension funds have been forced to operate as fully funded entities in order to become sustainable due to adverse macro-economic factors. This resulted in an increased pursuit of the operational and financial efficiency of pension funds.
Chapter three addresses pension governance as a determinant of pension fund efficiency.
CHAPTER 3

DETERMINANTS OF PENSION FUND EFFICIENCY: FUND GOVERNANCE

3.1 INTRODUCTION

This chapter addresses the concept of pension fund governance as an important success factor for pension fund efficiency. The chapter defines governance in the context of pension funds, elucidates on the importance of it and documents a code of good practice that should lead to enhanced pension efficiency if applied.

3.2 DEFINITION

Governance is defined in Carmichael and Palacios (2003:7) and IOPS (2007a:4) as the “systems and processes by which a company or government manages its affairs with the objective of maximising the welfare of and resolving the conflict of interest amongst stakeholders.” The authors thus suggest that pension governance is about transparency, conflict resolution and prudent management of the organisational resources that contribute to value adding for the pension fund.

Qureshi and McKay (2007:5) identify three broad approaches of viewing pension governance in the context of multi-national companies: (1) decentralised governance, which refers to where the pension fund governance is exercised in different pension funds in the same country; (2) compliant governance, which refers to following the law; and (3) efficient governance, which to refers to making financial and operational efficiency gains. Qureshi and McKay (2007) recommend the efficient governance option. Therefore, efficient governance should enable the pension fund to achieve compliance with the pension law and control of the decentralised units that eventually contribute to increased efficiency in operations.
Effective pension fund governance involves the processes and decision-making structures that ensure appropriateness of goals, information management procedures that support the goals, compliance with pension regulations and the pension fund’s stakeholders’ collectivism (Stewart 2009:2; Ambatchsheer, Useem and Mitchell 2000:499). In order to achieve efficient pension fund governance, trustees should be allowed the opportunity to initiate action in response to their needs and preferences, adapt swiftly to changing situations with minimal interference from policy makers, and therefore reconcile economic efficiency with equity to the stakeholders (Clark 2003b:13). In other words, the design, administration and management of pension funds should be closely attuned to the often-competition interests of those directly involved. According to Teisseire (2009:2) and Clark (2006:14), pension fund governance defines accountabilities, establishes authority levels, specifies mechanisms of enhancing compliance with the law and enables provision of accurate, timely and reliable financial information to the stakeholders.

3.3 IMPORTANCE OF EFFICIENT PENSION GOVERNANCE

Efficient pension governance is important as:

- It contributes to continuous improvement by ensuring that funds regularly review their governance structures for operational risks, internal controls and compliance with appropriate legislations (Moriarty and Zadorozny 2008:1; Clark and Urwin 2008:2; Asher and Nandy 2006a:14).

- It ensures that the pension fund has the structures and processes in place to meet the required standard of fiduciary care and proper documentation of the due diligence (Moriarty and Zadorozny 2008).
• Improves performance of the fund, creates trust amongst the stakeholders and is vital to the efficient functioning of the private systems (Stewart 2009:2).

• Improves administrative efficiency since compliance ensures lower operating costs OECD (2009b:2). Teisseire (2009:7) shows that absence of pension fund governance results in high operating costs since “poor governance begets more poor governance” that results in poor, inefficient and irrational decisions in both the short and the long run.

3.4 CODES OF GOOD PRACTICE IN PENSION FUNDS

Different studies (Ambachtsheer 2007b:11-12; Charmicael and Palacios, 2003:10–18; Stewart 2009:5-8; Teisseire 2009:7-10; Steel, 2006:46; Clapman 2007:6-8; WCM 2006:1-5; Casanova 2001:50-52; Besley and Prat 2003:26) provide a set of good conduct practices that pension fund managers and trustees should adhere to. These codes include: composition of the board of trustees; effect of the CEO on the leadership of the pension fund; finance education to trustees; liability insurance cover for trustees; appointment of service providers; adhering to a set of internal controls; communication which members; avoiding conflict of interest in decision making; monitoring performance of service providers; defining the roles of trustees; defining the roles of service providers; having an effective performance measurement system; and outsourcing specialised fund management functions. All these codes of good conduct are included in the instrument that is used to measure pension fund governance in the present study. Each of these practices are discussed in sections 3.4.1 to 3.4.14.

3.4.1 Composition of the boards of trustees

Stewart (2009:10) and Clark (2003b:22) advise pension fund entities to encourage employee or member nominated trustees to complement the sponsor appointed, and to provide a template for appropriate board mix
between the employees in active employment and those in optional membership to the pension funds. Further, to encourage the use of independent, professional trustees. Having a good blend of active and non-active trustees balances the long-term and short-term interests of the pension fund (Stewart 2009).

The appointment of trustees to the board should be done on merit (Carmichael and Palacios 2003:11; Clark 2004:237). These trustees should be able to act honestly, diligently and effectively in the interests of the members. There should be a fit and proper persons test for any applicant to the board, which should eliminate persons with previous criminal records and prescribe penalties in case of abuse of office (Carmichael and Palacios 2003:11).

The pension fund trustee board should also be diverse in terms of skills, experience and education (Ambachtsheer 2007b:7). This would encourage creativity and ensure that the board views issues and challenges from different perspectives, which may eventually improve governance.

3.4.2 CEO leadership of the pension fund

The CEO’s influence on decision making in the board is very important since all other board members are subordinate in authority to the CEO (Teisseire 2009:5). Although fund sponsors have substantial freedom in setting up pension funds, they must take responsibility for offering participants investment options with appropriate risk and return features, and monitoring the investment vehicles to make sure they continue to be appropriate (Mitchell and Tang 2008:1). These roles of the sponsor should be taken up by the pension fund under the leadership of the CEO.

The influence of CEO differs in defined benefit (DB) versus defined contribution (DC) pension funds. According to Robinson (2007:26), the CEO in a defined benefit fund plays a critical role as he/she appoints more trustees
in the board as opposed to the member nominated ones. It is therefore expected that the CEOs take charge of the operations of the defined benefit pension fund since they are ultimately responsible for the payment of the fixed terminal benefits to the employees.

Despite the above mentioned leadership responsibility of the CEO, there is a school of thought that advises against CEOs powerful control, citing instances where the CEOs of the pension fund may award themselves excessive benefits from their defined benefit pension funds (Colvin 2001:66, Bebchuk and Fried 2004:9; Hodgson 2004:3). Firms sometimes grant CEOs pensions that provide annuities of up to 60% of their average final salaries plus bonus from their defined benefit pension funds (Sundaram and Rermark 2006:9).

Ambachtsheer, Capelle and Lum (2008:19) and Impavido (2005:8) provided evidence that pension boards that are led by the CEO have weak oversight functions that lead to difficulties in sorting out the competing financial interests of different stakeholder groups. They argue that the CEO chairmanship to the board brings about dysfunction as a result of lack of delegation, board micro-management and the inability of the other members to question the views of the CEO. They recommend that the CEO should leave the pension fund to a professional board of trustees independent of the company’s board of directors but to follow its operations and major decisions closely.

Casanova (2001:50-51) therefore advocates for “constraint policies” that restrict the CEO. These policies should clearly prescribe the activities and transactions that the CEO is prohibited from undertaking, and that the CEO should not operate outside the written pension fund policies; the CEO will not fail to protect pension assets, information and files from damage; the CEO will not establish current compensation and benefits (including pension) that deviate materially from the geographic or professional markets for the skills employed; and the CEO will not engage in investment activities that violate the asset-mix as approved by the pension board of trustees.
3.4.3 Continuous financial education to trustees

According to Lusardi and Mitchell (2007a:8), there is a close relationship between financial literacy and economic behaviour. They have produced evidence that consumers with low level of finance education are likely to make sub-optimal investment decisions. Calvert, Laurent, John and Sodini (2006:14) concur that more financially educated households manage their costs in a better manner and invest more efficiently to earn higher returns. Similar views are documented in Kimball and Shumway (2006:10), Hilgerth, Hogarth and Beverly (2003:314), Clark et al. (2006:93) and Lusardi and Mitchell (2006:13).

Pension fund members do however fail to grasp facts relating to their pension systems. Many of them have a low interest in the information and the products offered in the retirement industry, which is difficult to understand (Braham 2007:13; James 2005:8; Lusardi and Mitchell 2007a). That is why trustees should educate members about both their retirement needs and the systems that they contribute to (Braham 2007). To do so, trustees should also be financially educated.

Pension fund trustees should be equipped with knowledge and skills in finance (investments, risk management, audit and accounting), human resource management, legal and strategic management (Ambachtsheer 2007a:5; Robinson 2007:19; Stewart and Yermo 2008:21; Lusardi and Mitchell 2007b:15). Clapman (2007:7) concurs that the governing body of the pension fund should consist of appropriately qualified, experienced individuals dedicated to fulfilling their fiduciary duties to fund beneficiaries. This is an important component of pension fund efficiency.

The link between pension fund education, governance and performance was shown by Robinson (2007:18). This study found a strong association between good practice in governance and the undertaking of advanced training. Robinson (2007) found that advanced training undergone by trustees could be linked to the appropriateness of investment choices offered to members, the
performance of investment funds offered to members, the level of fund charges and administrative services for individual members with DC benefits. In addition, trained trustees knew their duties and therefore risks of poor pension fund governance were lower than those who did receive training.

Stewart (2009:9), Moriarty and Zadorozny (2008:4), Ambachtsheer (2007b:3) and Lusardi and Mitchell (2007c:15) advise pension funds to offer finance and legal training to their trustees; provide guidance on the level and knowledge required of trustees; encourage trustee training on a continuous basis and provide online training; advise trustees where training can be obtained; approve training courses; and make funds available to pay for the training of trustees.

A trained trustee is one that has the ability to confidently insist that fellow staff or trustees enable him or her to understand the potential consequences of his or her decision in approving or denying a recommended course of action. A trained trustee would also be able to engage in a serious and critical evaluation of the pension fund (Clapman 2007:11).

In general training should equip trustees with financial market expertise and experience relevant to the pension fund’s ability to exercise its fiduciary obligations (Ambachtsheer 2007b:11). Training should continuously improve core competencies and should be current with regard to trustees evolving responsibilities as fiduciaries (Ambachtsheer 2007b).

### 3.4.4 Liability insurance cover for trustees

Trustees are held accountable for the decisions they make (Impavido 2002:18). The legal basis for such accountability is personal liability which can be insured. Insurance for personal liability ensures the ability of the pension fund to recover losses in case of mismanagement and to restore efficacy (Impavido 2002).
The WCM (2006:2) reports that trustees often shy away from risk taking to avoid litigation in the event that the pension fund makes losses due to poor investment decisions on their part. They recommend that funds take out liability insurance to shield the trustees especially where they had conducted due diligence but were ignorant of a fact of law. Insurance liability for trustees leads to constructive risk taking and decision support that improves the long-term performance of the pension fund (WCM 2006).

### 3.4.5 Appointment of service providers

Pension funds often use service providers to advise the trustees to make appropriate decisions and provide them with facts (Carmichael and Palacios 2003:10). In Kenya, service providers include auditors, fund managers, custodians, administrators and actuaries (Odundo 2008:9). The use of service providers contributes to efficiency and consequently financial performance of the pension fund.

Sometimes, trustees delegate some authority to the service providers. Stewart (2009:8) however advises pension fund trustees to guard against conflict of interest with the “commercial trustees” (service providers taking up pension matters on behalf of the members at a fee). To achieve efficiency, Stewart (2009:7) suggests that the pension fund’s governance structure should ensure an appropriate division of operation and oversight responsibilities, and the accountability and suitability of those with such responsibilities.

### 3.4.6 Internal control system

To achieve financial efficiency, pension funds should establish internal governance structures and processes designed to minimise corruption and mismanagement (Charmicael and Palacios 2003:12). These governance structures should include a risk management and audit committee that should
have clear reporting rules. The structures should include a code of conduct for staff and senior executives, detailing how to deal with conflict of interest and establishing minimum standards of ethical behaviour. It should detail the roles and responsibilities of the different groups within the agency, such as trustees, senior employees, audit committee and the service providers (Carmichael and Palacios 2003). In addition, the internal control framework should specify the processes to demonstrate compliance with the pensions law and ensure management assurance, delegation of authority, the role of the CEO, the role of trustees, appointment of service providers and other regulatory issues must be clarified as they may have a bearing on the operational risks and consequent efficiency of the pension fund (Kyiv 2003:28)

To emphasise the importance of internal control standards, Canada’s pension’s regulatory authority (Canadian Association of Pension Supervisory Authorities) requires auditors to question the pension fund’s governance structures and processes, and internal control systems to provide documentation of decision outcomes and the rationale behind them. This, in their view, represents due diligence that minimises instances of audit and legal risk that in turn increases administrative efficiency.

Finally, Stewart (2009:6) recommends that pension funds institute appropriate communication and incentive mechanisms that encourage good decision making, proper and timely execution, transparency and regular review and assessment of internal controls. By doing so risk based internal controls would contribute to improved reporting and disclosure of financial aspects of the enterprise. This in turn would ensure timely and resourceful achievement of organisational objectives.

3.4.7 Communication with members

Pension fund members are the most important stakeholders since pension funds are established for their benefit and all policies made should be to the
best of their interests (Ambachtsheer 2007b:4; Casanova 2001:48; Mitchell and Tang 2008:6; Stewart 2009:1). Communication with these members is therefore crucial since they own the pension funds and all efficiency measures should be geared towards addressing their concerns. Pension funds should also have constant dialogue with the sponsors as well as channelling the relevant information to the relevant stakeholders' decision-making thus improving efficiency (Teisseire 2009:10).

Communication helps members to achieve a greater level of understanding and appreciation of their pension funds (Aon 2005b:2). Through personalised communication members should be assisted to understand the extent of their current and projected benefits and the assumptions that underlie the computation of the projected benefits. According to Moriarty and Zadorozny (2008:1), formal communication policies reduce legal risks associated with incomplete member communication, especially in the case of defined contribution pension funds.

Communication to members on all pension matters is a fiduciary obligation of the board of trustees (Bertram 2009:3). The OECD (2009b:7) documents the information that should be communicated to pension fund members on a continuous basis as:

- Internal and external regulations,
- The features of the pension fund design,
- The role composition and responsibilities of the different supervisory and executive bodies of a pension fund and the relationship between them,
- Extent of delegation of managerial functions to third parties; and the
- Investment composition and mix.

Furthermore, WCM (2006:5) identifies the steps that a pension fund board should take in respect of communication with members as; implementation of Web-based pension information resources and sending regular newsletters to members, as well as providing an annual report to members on pension fund governance.
According to WCM (2006:5), the information that needs to be communicated to members includes:

- The pension fund performance,
- pension fund expenses,
- pension fund incomes,
- the funding status (proportion of assets to liabilities), and
- the investment classes in which pension fund assets are held.

Carmichael and Palacios (2003:18) provide an accountability checklist, and suggest four efficiency issues that should be reviewed when evaluating the communication strategy of pension fund members. These issues include; public disclosure on financial performance and the liquidity status of the fund; the pension funds’ compliance with the pensions law; the extent to which the pension fund returns compare with the established benchmarks; and the remuneration and other incentives offered to the trustees and service providers. Disclosure on the four aspects enables members to monitor the trustees’ ability to optimize pension fund returns which is an indicator of pension fund efficiency. Finally, the pension fund board of trustees should communicate with the participants, beneficiaries and supervisory authorities in a timely, accurate and transparent manner (Stokes 2009:4).

### 3.4.8 Conflict of interest in decision-making

Potential conflict of interest in pension funds arise when two or more parties (for example trustees and sponsors, trustees and external service providers or sponsor and service providers or trustees, sponsor and service providers) make decisions that are not in the interest of the members (OECD 2009c:1). Conflict of interest thus implies taking decisions that are not in congruence with the key stakeholder’s objectives. Balancing the stakeholders’ interests is a major challenge facing pension fund management teams since they are unable to avoid bias in decision making thus making suboptimal decisions to
the detriment of their pension funds resulting in inefficiency in general operations of the pension fund (Ambachtsheer et al. 2008:16; Robinson 2007:24).

Inherent conflict of interest between the trustees and sponsors arise because sponsors have extensive discretionary powers in making decisions and at the same time the trustees are employees of the sponsor (Moriarty and Zadorozny 2008:2). Such decisions include: determining the level of sponsor contributions to the pension fund, retirement age of the members and the organisational use of the workforce (Moriarty and Zadorozny 2008). In addition, Moriarty and Zadorozny (2008) identify “two hat” decisions (situations that put the decision maker in a dilemma) that result in inherent conflict of interest on the part of the sponsor. These decisions include: the level of funding (the adequate asset: liability ratio since the sponsor determines the contribution rates), types of investments to make and the appointment of service providers. The inherent conflict of interests will always exist as it cannot be eliminated but should be managed (Moriarty and Zadorozny 2008:2).

According to Robinson (2007:24), the risks to pension funds in terms of conflict of interest are greatest in defined benefit schemes where the sponsor nominates a larger percentage of trustees than the members and specifies the benefits payable on retirement. In this situation, the sponsor is able to influence resource allocation decisions, which leads to conflict of interest in appointing service providers, determining a trustee’s remuneration, the CEO’s accountability for an under-performing pension fund and making of inefficient decisions to avoid hurting the sponsor company (Robinson 2007).

Having a pension governance policy minimises potential agency problems or conflict of interest between fund members, the fund administration and the service providers that can adversely affect the security of pension savings (Stewart 2009:2). The absence of conflict of interest improves the performance of the fund, creates trust amongst the stakeholders and is vital
for the sustained operation and efficiency of the pension fund (Stewart 2009). According to Robinson (2007:22), conflict of interest is a breach of the fiduciary duty bestowed on the trustees by the pension fund members, which results in inefficiency and misconduct in pension fund administration.

3.4.9 Monitoring performance of service providers

Today's investment climate makes monitoring of service providers more critical since the investment environment is turbulent and therefore calls for caution and diligence in the selection and maintenance of pension fund assets (Henon and Kanouse 2004:17). Service providers should be monitored to enhance competitiveness and cost efficiency in the attainment of the pension fund objectives (Henon and Kanouse 2004).

According to Carmichael and Palacios (2003:17), service providers have to be evaluated and monitored closely on the basis of the service contracts signed with them and the remuneration payable to them should be linked to their responsibilities and the performance of the pension fund. An effective and objective monitoring policy for all service contracts ought to establish appropriate benchmarks, set reasonable monitoring periods over which the service providers’ effectiveness and performance will be measured and the penalties for non-achievement of the pension fund’s performance objectives enforced (Clapman 2007:18). Clapman (2007) suggests that the monitoring policy be in writing and communicated to the service providers.

According to Moriarty and Zadorozny (2008:6), performance monitoring by use of information technology ensures objectivity, is accurate and ensures that deviations are corrected before they translate to losses. Such a system however, must be backed by appropriate controls and clear benchmarks must be set for evaluation (Moriarty and Zadorozny 2008). Use of information technology to monitor the performance of service providers’ could result in more efficiency on their part and so higher returns can be generated at lower costs.
3.4.10 Defining the role of trustees

Pension legislation should define the main duties of the trustees (Stewart and Yermo 2008:a14; Stewart 2009:7; Kiptim 2007:8). These duties should specify the roles with regard to the investment decisions, appointing the service providers, monitoring the fund performance, specific measurable objectives and their mandate to use sub committees to ensure that the key issues are covered (Stewart 2009). Clarifying the roles of trustees thus avoids haphazard decisions and ensures cost efficiency.

Ambachtsheer (2007b:5) observed that for the pension board of trustees to be effective, the trustees must understand why the pension fund exists and be able and willing to dedicate their time, wisdom, skills, and experience to helping the pension fund achieve its purpose. This can only be achieved if the trustee’s mandate is expressly and unambiguously stated (Ambachtsheer 2007b). Kiptim (2007:9) further stresses the need for trustees to act on a clear mandate collectively to save on the time required for decision-making thus contributing to pension fund efficiency. Clearly defined roles of trustees result in speedy and cost effective decision-making processes.

Stating the trustee’s mandate clearly, clarifies the roles and accountability of trustees and ensures that “things don’t fall through the cracks” (Moriarty and Zadorozny 2008:3). Moriarty and Zadorozny (2008) suggest that the trustees’ roles be examined, adjusted and formally approved by the regulating authority and the members. Defining the role of trustees may cause a re-examination of strategic objectives and re-align the human resource strategy with the business strategy to increase trustee involvement in the affairs of the pension fund (Clapman 2007:12).

3.4.11 Defining the roles of service providers

Structural decision-making involves formulation of strategies that enhance achievement of the pension fund’s goals that are often set externally by
stakeholders but that are heavily influenced by the assignment of roles and responsibilities to external service providers (Clark and Urwin 2009:4). A well-governed pension fund therefore has a clearly articulated set of goals and objectives linked to the allocation of the roles and responsibilities to the service providers. A poorly governed pension fund is however one in which the goals and objectives are poorly specified and at odds with the assigned roles and responsibilities, sowing the seeds of doubt, confusion, and conflict with the service providers (Clark and Urwin 2009). Defining the roles of service providers improves order and efficiency in the conduct of pension fund’s affairs and ensures alignment of their objectives with those of the pension fund (Stewart 2009:14).

Clarity of roles, objectives and responsibility of the service providers are crucial if transparency and accountability are to be achieved (Carmichael and Palacios 2003:10). The envisaged clarity pertains to the specific deliverables expected from the service providers, the conditions under which they can be appointed, or reappointed or removed, the reporting time periods and the expected pension fund’s returns (Carmichael and Palacios 2003). Clarifying the role of service providers thus enhances accountability and effectiveness in the operation of the pension fund’s affairs.

### 3.4.12 Performance measurement system

Pension fund trustees should maintain a performance measurement system that reviews periodically the performance of the fund in terms of the returns generated from investments and the costs incurred (Carmichael and Palacios 2003:17). Such periodic reviews should be done regularly and rewards for effective achievement of the goals be return based (Carmichael and Palacios 2003). In other words, better performance should lead to higher rewards to those involved in pension fund management.

Impavido (2002:25) suggests an all inclusive pension performance measurement system that includes independent evaluations of performance
3.4.13 Outsourcing specialised fund management functions

Pension funds that outsource specialised functions derive greater efficiency in their investment choices and improved administrative efficiencies (Tang and Mitchell 2008:10; Bikker and Dreu 2009:17). Specialised services that pension funds outsource include: actuarial valuation of assets and liabilities, long term asset and liability matching, simulation of risk and general fund management activities (Bikker and Dreu 2009). Outsourcing these activities ensures that pension funds maximise pension benefits and reduce their administration costs (Stewart 2009:10).

The board of trustees of a pension fund relies on the expertise and advice of appropriately selected and independent consultants and staff (Clapman 2007:17; Robinson 2007:30). Trustees delegate specialises responsibilities subject to appropriate supervision from the regulatory authorities (Robinson 2007). Outsourcing however does not relieve them of their fiduciary responsibilities particularly with regard to selecting and monitoring the consultants in a manner consistent with their fiduciary obligations (Clapman 2007). Clapman (2007) thus suggests that outsourcing is controlled delegation of authority to experts.

Pension boards that lack certain functional competencies should outsource those functions subject to the pension legislation (Ambachtsheer et al. 2008:19). Moriarty and Zadorozny (2008:4) recommend that trustees source for additional expertise when they consider that special projects warrant a detailed review or just to obtain an alternative perspective from an
independent expert. This could include a review of the asset mix to reflect changing demographics, a review of alternative investments, cost benchmarking, or revisiting the funding and accounting policies (Moriarty and Zadorozny 2008). Outsourcing is therefore a means of increasing expertise that would result in augmented efficiency.

An alternative view of outsourcing documented in Stewart (2009:11) is third party monitoring, which involves obtaining external performance appraisal. Third party monitoring in technical areas of pension fund management, such as actuarial valuation, asset mix and risk analysis and management in pension fund management can be delegated with good results that can be used to evaluate the internal performance, potentially leading to enhanced pension fund efficiency (Stewart 2009).

There are however risks involved when pension funds outsource some of their operations (Robinson 2007:31). These risks include the inherent conflict of interest that may arise especially where the consultant is also an adviser to the sponsor and secondly, the risk that the consultant’s advice is not understood by the trustees or is not provided by suitably qualified advisers (Robinson 2007).

The decision to outsource should be guided by cost efficiency (Clapman 2007:18). Robinson (2007:32) noted that outsourcing by smaller pension schemes may not be cost effective. Aon (2005b:2) discusses a concept of “total retirement outsourcing” for pension funds to increase administrative efficiency. Under this arrangement, independent specialists would be expected to offer a variety of services including record keeping and plan administration, ensuring that the pension fund complies with the pensions law, actuarial valuation, investment management, asset custody, preparing member’s reports and financial statements and providing education to trustees and members. Total retirement outsourcing makes the trustees to be overseers of the pension fund’s affairs and ensure that the service providers offer the best possible services (Aon 2005b). Moreover, outsourcing calls for transparency and full disclosure of all costs by the service providers (Aon
According to Aon (2005b), full disclosure implies that potential vendors disclose the gross costs associated with each proposed service and the revenues if any they will derive from the pension fund investments which in turn enable the pension funds to make rational outsource decisions that reduce pension fund costs. Outsourcing certain management functions can therefore improve pension fund efficiency.

### 3.4.14 Compensation of the internal trustees

Compensation to internal trustees (nominated by members and the sponsor) is limited to tokens, meeting attendance fees, lost earnings (for the time devoted in running the pension fund) and reimbursement for the costs spent for the pension fund’s benefit (Clark and Urwin 2009:9). Clark and Urwin (2009) suggest a positive link between compensation and performance of the pension fund where the remuneration is tied to performance of the pension fund.

Remunerating the internal trustees improves accountability and creates an incentive to the trustees to enable them to make better decisions devoid of conflict of interest (Yermo 2008b:24). The remuneration policies vary widely not only amongst countries but also amongst pension funds in the same country (Yermo 2008b). Pension funds should compensate their board of trustees to increase their commitment to running the pension fund and consequently increase efficiency and administrative effectiveness (Clapman 2007:21).

### 3.5 SUMMARY

In this chapter, fund governance as a determinant of fund efficiency was discussed. Fourteen codes of good practice in fund governance were reviewed, namely boards of trustees having a competent sponsor and member-nominated trustees; minimal interference by CEOs in pension fund board decisions; the provision of finance education to trustees; the provision
of liability assurance cover for trustees; the competitive appointment of service providers; the adherence to a set of internal controls; communication with members; the avoidance of conflict of interest in decision making; monitoring performance of service providers; defining the roles of trustees; defining the roles of service providers; having an effective performance measurement system; outsourcing specialised fund management functions; and the remuneration of boards of trustees. These good practices are included in the hypothesised model to improve pension fund efficiency as proposed by the present study. In chapter four pension fund regulations as determinants of pension fund efficiency will be reviewed.
CHAPTER 4

PENSION FUND REGULATIONS

4.1 INTRODUCTION

This chapter reviews literature on pension laws. It discusses the nature and purpose of pension fund laws and concludes by elucidating pension laws relating to compliance costs, size of the pension fund board, regulation of service providers, taxation of pension funds, compulsory levies, annual meetings, risk based supervision, financial reporting requirements and investment restrictions.

4.2 DEFINITION

According to IOPS (2007a:2) and the OECD (2002:3), pension fund regulation involves “the oversight of pension funds and the enforcement of and promotion of adherence to compliance with regulations relating to the structure and operation of pension funds with the goal of promoting a well functioning pensions sector.” IOPS (2007a) thus suggests that pension-regulating institutions be set up to oversee pension funds and enforce the regulations.

According to Demaestri (2003:7), pension fund legislation should however not be integrated with the supervision of other financial institutions in the financial system such as banks and insurance companies since their operations and mandates differ significantly from those of pension funds. IOPS (2007a:3) mentions the unique features of the financial products generated by pension funds as: the long-term nature of the contract involved, complexity of the products (tax, actuarial valuations and life expectancy forecasts), limited competition and choice since members belong to their employer’s pension funds by default and their social role in reducing old-age poverty.
Hu, Stewart and Yermo (2007:6) identify two approaches to pension fund regulation as Quantitative Asset Restrictions (QAR) and the Prudent Person Rule (PPR). QAR involves legally limiting the percentage of assets that can be invested in a specific asset class by a pension fund. The PPR rule involves the legal expectations of the governing body in respect of obligations relating to the investment management function with the requisite level of skill and knowledge and to obtain external assistance where it lacks such expertise (Hu et al. 2007).

Pension laws are embodied in the legal framework whose scope covers all the dimensions of pension fund management that include registration, investing, custody of assets, general management, payment of benefits and winding up (IOPS 2007a:2). Moreover, Asher and Nandy (2006b:9) suggest that pension fund regulations focus on improving legal compliance, financial controls, actuarial examination and performance of pension fund managers.

Typical components of pension regulation include licensing (restricting and controlling pension funds entry in the industry), governance, investing and disclosure of information to the stakeholders (Eijffinger and Shi 2007:1). Other modules suggested for regulation in (IOPS 2008b:8) include: monitoring (tracking performance and actions of the trustees and service providers), communication (providing regular reports to the industry and announcing their priorities and compliance strategies), analysis (evaluating financial status of pension funds against benchmarks of the entire industry), intervention (imposing sanctions where there is non-compliance with the pension law) and correction that may be punitive, remedial or compensatory.

According to Eijffinger and Shi (2007:2), stringent pension fund regulation causes inflexibility, discourages risk taking and interferes with the running of private pension systems. Eijffinger and Shi (2007) suggest that appropriate pension regulation should leave sufficient scope for innovation and creativity in the design of pension products that would ultimately lead to improved performance of the pension funds.
4.3 IMPORTANCE OF PENSION FUND LEGISLATION

Successful regulation of the pension fund industry ensures prudent investment of pension fund assets and provides assurances for the payment of pension benefits when they fall due (Clapman 2007; Galer 2009; Stewart 2009; Blome, Fachinger, Franzen, Scheuenstuhl and Yermo 2007; Kyiv 2003; OECD 2008a). The regulations further contribute to the achievement of systemic stability in both the monetary and fiscal systems of a country (Demaestri 2003:6) and enhances financial sector efficiency since pension funds are major institutional investors in their countries (Robinson 2007:8).

According to Steele (2006:45), pension fund laws contribute to prudent and consistent management of pension funds. Steele (2006) thus suggests that in the absence of legislation that specifically addresses the pension fund industry, pension fund administrators may be confused as to what is required of them and the members would not clearly understand their rights and obligations, thus contributing to inefficiency.

Pension regulation influences administrative efficiency when the regulations limit the frequency of transfers between pension plans, impose limits on administrative and investment charges made by the service providers and where penalties are imposed on persons who commits fraud or act inconsistently with pension fund objectives (OECD 2009b:5). The OECD (2009b) therefore views pension fund efficiency as anchored on the prevailing pension laws.

The National Treasury in South Africa (2004:4) summarises the need for pension fund regulation as follows: to encourage individuals to save for their own retirement and the needs of their dependants, encourage economic growth, ensure that pension funds are cost-efficient, prudently managed, transparent and fair, improve standards of fund governance and accountability and to enhance long term sustainability to the pension funds. Effective pension fund regulations in Kenya have since 2001 resulted in improved investment practices, professionalism, member confidence, participation and
involvement, record keeping, transparency and disclosure of pension information (Odundo 2008:13).

Pension funds should therefore adhere to the regulations set to remain within the framework of the law and avoid compliance costs that erode pension fund benefits.

4.4. ELEMENTS OF PENSION FUND REGULATIONS

Key issues of pension fund regulations that will be discussed in this analysis include the regulation of compliance costs, size of the pension fund board, service providers, taxation of pension funds, compulsory levies, annual meetings, risk based supervision and quantitative restrictions on pension fund investments.

4.4.1 Regulation of compliance costs

As pension funds increasingly become visible economic and social players, governments increase their scrutiny of them (O'Neill, 2007:3), which leads them to incur substantive compliance costs. O'Neill (2007:12) cites the example that pension funds in Canada are required to comply with specific environmental, social and governance considerations that require them to source expertise from different specialists, which increases their operating costs.

According to Queisser (1998:50), compliance costs comprise expenses incurred in an attempt to abide by the pension laws and include segregating the custodian, management and investment functions of pension funds in addition to monetary penalties for non-compliance. Kyiv (2003:51) notes that compliance costs are difficult to measure since they are incurred in fulfilment of legal requirements that change from time to time. Quiesser (1998) suggests that mandatory compliance costs result in cost inefficiencies of the pension funds.
Most countries regulate the structure and, partially, the level of compliance charges for pension funds and lists cost that are subject to regulation such as admission fees, asset management fees and other operating costs. Costs caused by legislative requirements should be maintained since all costs are eventually borne by members and so for the regulator, it is necessary to balance the costs and benefits of guarantees to improve the performance of the pension funds (Chlon-Dominczak 2003).

The present study investigates the influence that the regulation on compliance costs has on pension fund efficiency.

**4.4.2 Regulation of the size of the pension fund board**

Rules restricting the size of the board take cognisance of the fact that large pension boards are not only difficult to control but also take a long time to reach concise decisions (Hess and Impavido 2003:21; Yermo 2008b). Yermo (2008b) suggests that small boards can make better and quicker decisions since the effectiveness of the board depends on the working methods and voting procedures.

The maximum board member size in Canada and Singapore is twelve, seven in Ireland and New Zealand, twenty four in Morocco and Thailand, nine in Namibia, thirty seven in India, eleven in Japan, twenty in Korea and France and eight in the Philippines (Impavido 2002:27-29; Yermo 2008b: 21). In all cases however pension funds are free to use a lesser number of trustees in their respective boards. According to Yermo (2008b), pension funds with a large number of members on their boards of trustees record lower administrative efficiencies compared to those with fewer members.

The Kenyan RBA Act (2006) imposes limits the number of trustees in a pension fund board to ten members. In a defined contribution pension fund, the Act dictates the ten trustees be appointed on a 50:50 basis by the sponsor and the members respectively where as in a defined benefit pension fund, the
sponsor nominates two thirds of the trustees and the members appoint one third of the trustees to the board. The National Treasury in South Africa (2004:57) requires every pension fund to have a board of trustees composed of 50% of the members appointed by the members and the remaining 50% appointed by the sponsor. The regulatory body does not however prescribe the maximum number of trustees in the pension board.

The present study investigates the effects of the size of the board on pension fund efficiency.

4.4.3 Regulation of the service providers

A typical pension fund undertakes a range of activities, (collection of contributions, administration of member accounts, investment management, retirement products provision and custody of the pension assets) many of which are outsourced to external service providers (Bateman and Mitchell 2004:69). This impels the legislators to draft appropriate laws to govern the relationships between the service providers and the pension funds (Bateman and Mitchell 2004).

The National Treasury in South Africa (2004:50) mandates financial services providers to be financially sound, produce products that are relatively standard and to ensure that they meet the ethical guidelines issued by their respective professional bodies. According to the National Treasury (2004), adherence to these principles ensures that pension funds achieve higher levels of professionalism and effective performance.

According to the Kenyan RBA, the service providers must be registered with their respective professional bodies and must be free from conflict of interest with the pension funds. The RBA also expressly approves and circulates lists of actuaries, fund managers and custodians to pension funds. By regulating the service providers, RBA aims at ensuring that services offered to pension
funds are of acceptable quality and hence valuable in the achievement of pension fund efficiency and performance (RBA 2008).

The present study seeks to determine the effect that the regulation of service providers has on pension fund efficiency.

4.4.4 Taxation of pension funds

According to Asher and Nandy (2006b:163), taxation of pension funds and consequent retirement incomes is regressive since their mandate is not actually profit making but accumulation of wealth for the purpose of providing for retirement income. Asher and Nandy (2006b) further state that taxation in any form on pension funds or pension fund income merely serves to deprive the pension fund beneficiaries of their much-needed benefits and thus jeopardises efficiency. That is why the National Revenue Authority in Canada gives pension plans preferential taxation treatment in order to encourage savings for retirement and to stabilise pension funds as legitimate vehicles of providing for retirement income (Albert 2006:21; Tamagno 2006:17; Whiston and Gottlieb 2005:4). Albert (2006) describes the preferential tax treatment as the exemption from taxation and allowing sponsors to recover pension expenses against the taxable income thus reducing the tax payable that result in improved performance.

The present study investigates the effect that the law on taxation of pension funds has on pension fund efficiency.

4.4.5 Regulatory levies

Regulatory authorities levy charges on pension funds in many different ways where some are once off registration fees, ongoing fees based on a fixed fee per period, a percentage of contributions or a percentage of the fund assets (Whitehouse 2000:14; Ippolito and Turner 1987:18). Regulatory levies reduce
the pension benefits significantly and are felt more when a pension fund has to pay penalties for failing to remit the levies on time (Whitehouse 2000).

In Kenya, the RBA Act (2006) mandates pension funds to pay RBA levies amounting to 0.2% of the fund value at the end of the financial year. Failure to pay the levy on time attracts a fine of 15% on the unpaid balance. This increases compliance costs and lowers the pension fund returns.

This study investigates the effect that compulsory levies have on pension fund efficiency.

### 4.4.6 Regulatory meetings

The Kenyan RBA mandates trustees to hold at least four annual meetings with the fund managers, administrators and custodians. Odundo (2008:12) documents the importance of the meetings since trustees are brought to the awareness of the quarterly performance of their pension funds. Moreover, regulatory meetings provide trustees a vehicle to question the service providers on issues occurring at the end of the quarter, evaluate the performance of the service providers against the benchmarks stated in the investment policy and set the expectations for the next quarter. Setting the mandatory meetings thus compels trustees to monitor the performance of the service providers’ thus increasing pension efficiency.

The law on regulatory meetings of fund managers and stakeholders of a pension fund is also investigated as a determinant of pension fund efficiency in the present study.

### 4.4.7 Risk based supervision of pension funds

Risk-based supervision is the adoption of supervisory mechanisms on financial institutions and development of internal controls that seek to prevent
the occurrence of risk as opposed to reconstruction after the occurrence of risk (Brunner, Hinz and Rocha 2009:4). Brunner et al. (2009) compare risk based supervision to the Basell II or Solvency II agreements used in the banking and insurance industries respectively. According to Brunner et al. (2009), Basell II provides banks with a choice between a standardised approach to calculating credit risk using specific risk factors and an internal ratings based approach that would allow banks to use their internal ratings systems for credit risk. Solvency II on the other hand provides insurance companies with a risk assessment framework that is useful in the determination of their going concern status (Brunner et al. 2009). Therefore, risk based supervision ensures that the institutions being supervised operate at moderate risk and are able to control their asset liability ratios.

According to Brunner et al. (2009:2), the pioneers of risk-based supervision for pension funds are Australia, Denmark, Mexico and the Netherlands. The main objectives of risk-based supervision are to ensure that institutions adopt sound risk management procedures and hold appropriate levels of capital to ensure better returns to the stakeholders (Hinz and Van Dam 2006:4). The risk-based approach to supervision of pension funds entails ‘forward looking, primarily risk based, consultative, consistent and in line with the international best practice’ (Thompson 2008:13). According to Thompson (2008), this form of supervision results in improved efficiency and an intentional attempt to compel pension funds to achieve their objectives in a tolerable risk environment.

More specifically, Brunner et al. (2009:8) recommend risk based supervision of pension funds because it reduces the risk of under funding, limits losses caused by adverse movements in asset (shares and bonds) prices, avoids risky investments and allocates the scarce supervisory resources efficiently. Risk based supervision thus results in improved products and lower operating costs for pension funds.

The use of information technology (IT) has enhanced off-site risk based supervision of pension funds (IOPS 2007b:6). Through IT, the monitoring of
transactions, safekeeping of fund assets, the generation and reporting of statistics, the detection of problems for further on sight supervision, the monitoring financial statistics and funding requirements and the controlling of the fitness of the pension fund trustees are made possible. IOPS (2007b) suggests that these measures result in more efficient, effective and sustainable pension funds.

The change from non-risk to risk based approaches to supervision of pension funds in Kenya led to offsite inspections, a pro-active risk based approach, improved efficiency and clearer definition of pension fund specific risk (Odundo 2008:14). Odundo (2008) thus concludes that risk based supervision improves efficiency of the pension funds and contributes to better supervision on the part of the regulator.

For this study the implementation of risk-based supervision of pension funds is also investigated as a contributor to pension fund efficiency.

4.4.8 Financial reporting regulations

The National Treasury in South Africa (2004:53) obligates pension funds to supply certain prescribed information in their annual financial statements and triennial valuation reports. This is done to enable authorities to identify pension funds that may be at the risk of funding shortfalls or mismanagement so that a corrective action may be taken. Regulating financial performance thus fosters increased disclosure of financial statement information that results in efficacy.

Pension plan reporting practices influence the pension fund’s investment outcomes (Yang and Mitchell 2005:13; Hodgson 2004:6). When pension funds adopt elaborate reporting frameworks, independent entities are able to evaluate their performance which consequently improves the fund performance by introducing best-practice management techniques (Yang and Mitchell 2005).
According to Impavido (2002:26), the information that should be reported in addition to the statutory financial statements are the pension fund’s mission, the governance code, investment mix, administrative cost structure, investment returns, remuneration of key individuals and service providers and actuarial assumptions used in the computation of the funding levels. This information enlightens the stakeholders and contributes to improved decision-making on their part (Impavido 2002).

In Kenya, pension funds are required to present annual audited accounts, triennial actuarial valuation of DB schemes, quarterly investment and custodian reports and any other financial information that may be required by RBA from time to time (Odundo 2008:11). The provision of this information ensures pension fund efficiency through proper and timely provision of reliable financial information (Odundo 2008).

The law on financial reporting is also investigated as a determinant of pension fund efficiency.

4.4.9 Investment regulations

Pension investment regulations are meant to ensure that pension funds adopt appropriate diversification strategies and minimise agency, systemic and portfolio risks (Kyiv 2003:8). Kyiv (2003) argues that the regulations should spell out the ceilings beyond which pension funds should not invest in any specific category or class of investments to enhance financial efficiency.

Pension funds in unrestricted investment environments generate more returns than those operating in the restricted environments (Srivanis, Whitehouse and Yermo 2000:14; Quigler 2006:3). The failure to restrict pension fund investments results in the application of the prudent man principle and thus concentrate on high return assets as opposed to the low return assets (Srivanis et al. 2000). In addition, investment restriction minimises creativity and tends to focus more on the long-term objectives at the expense of the
short-term ones (OECD 2009c:12). A disclaimer is however that the high returns are obtained in the context of high risk (Srivanis et al. 2009).

Pension fund investments can be controlled through asset class (ceiling on the proportion of specific classes in a pension fund’s portfolio), concentration of ownership (ceiling on the proportion of shares of a company that a pension fund can hold), by issuer (ceiling on the proportion of assets in a fund’s portfolio issued by the same institution), by security (ceiling on the proportion of individual securities in a fund’s portfolio) and by risk (minimum acceptable risk rating of securities) (Srivanis et al. 2000:9). Investment regulation is therefore done to balance the investment risks and returns (Srivanis et al. 2000).

It is furthermore, important to control offshore investments as many pension fund managers are not well experienced to take external risks, capital markets in the international environment are reducing liquidity as a result of the global economic meltdown, they involve huge risks and the transaction costs involved are high (OECD 2009c:12). OECD (2009c) therefore suggests a restriction on international investments to ensure a fair equilibrium between pension fund risks and returns at lower costs.

According to O'Neill (2007:18), restricting offshore (international investments) limits volatile capital flows and hence assists in the achievement of macro-economic stability. Such restrictions reduce capital flight and contribute to the growth in the domestic markets since pension funds invest the funds in the domestic market (O'Neill 2007).

Kyiv (2003:15) however identifies three adverse effects of asset allocation regulations. They include the creation of systematic market risk implying that higher returns can only be achieved if one takes more risk; pension funds ending up controlling large shares of markets in which they invest make the markets less liquid and the development of capital markets are being hindered. Kyiv (2003) thus advocates for careful investment restrictions that lead to pension fund growth without taking undue risk.
In Kenya, pension fund investment regulations issued by RBA in 2006 provide maximum investments in various classes of assets as follows: government securities (government bonds and treasury bills) 70%, commercial paper and corporate bonds 30%, quoted equity 70%, real estate 5%, off shore investments 15%, term deposits and cash 30%, guaranteed funds 100% and unlisted equities 5%. These limits in RBA’s view should provide guidelines to pension funds to tame their risk exposure while at the same time increasing their returns.

The influence of the pension regulation limiting investments is also investigated as a determinant of pension fund efficiency.

4.5 REGULATIONS AFFECTING PENSION FUND EFFICIENCY IN KENYA

The RBA Act (2000) has embedded specific regulations that are supposed to encourage pension fund efficiency. These regulations include:

- Trustees must prepare annual accounts consisting of a statement of assets and liabilities, income and expenditure account and a cash flow statement at the end of every financial year. These accounts must be audited and presented to the RBA within a period of 3 months from the end of the financial year and also presented to the members at the annual general meeting (section 34).

- Every pension fund shall have a prudent investment policy on the investment of funds so as to maintain the capital funds of the scheme and generally to secure market rates of return on such investments (section 37).

- A fund whose value is Ksh. 5 million or less may invest up to 100% of its funds in government securities (section 37 ii).

- Pension fund savings cannot be loaned directly or indirectly to any person and cannot be used as collateral to secure loans. However an individual’s pension accumulation can be used as collateral for a home mortgage (section 38).
- A trustee who fails to attend three consecutive board of trustees meetings will be disqualified from serving as a trustee (Legal Notice No. 77).
- Members with deferred pensions in a defined benefit fund should receive annual increments as recommended by actuaries during actuarial valuations (Legal Notice No. 77).

The present study explores what influence these regulations have on fund efficiency.

4.6 SUMMARY

This chapter expounded on pension fund legislation as a critical success factor to pension fund efficiency. The literature review concludes that good pension fund laws encourage pension funds to flourish while feeble pension laws result in inflexibility and a lack of creativity amongst pension fund managers. The reviewed regulations are included in the instrument which measures adherence to pension fund regulations in an effort to determine the effect of the latter on fund efficiency. The following chapter addresses two additional determinants of pension fund efficiency namely the investment strategy and fund ethics.
CHAPTER 5

INVESTMENT STRATEGY AND FUND ETHICS

5.1 INTRODUCTION

This chapter reviews the importance of the investment strategy and ethics in the pension fund industry. It starts by discussing the meaning, importance and elements of a pension fund investment strategy, then expounds on an ethical code of conduct applicable to pension funds.

5.2 MEANING OF INVESTMENT STRATEGY

Stanko (2002:3) defines “investment strategy” as the assortment of investments made by pension funds. The investment strategy determines the investment mix of the total funds of a pension fund that aims at having a careful balance between investment risk and returns (Stanko 2002; Eichholtz and Margaritova 2009:1). The investment strategy is therefore a plan that guides the choice of the investments that pension funds make.

Risky assets (equity investments) generally generate higher returns compared to the less risky ones (bonds) (Eaton and Nofsinger 2001:125; Asebedo and Grable 2004:3; Kakes 2006:29; Bikker et al. 2009:14; Baldurdottir 2000:3). This positive relationship between risk and returns causes a dilemma since to get more returns, pension funds have to take more risk (Eaton and Nofsinger 2001). It is therefore suggested that pension funds adopt appropriate investment strategies that provide higher returns on investments with moderate risk (Eaton and Nofsinger 2001).

According to OECD (2006:2), the investment strategy varies depending on the type of pension fund. In the case of a DB, the goal of the investment strategy is to generate the highest possible returns consistent with the liabilities and
liquidity needs of the pension fund. In a DC pension fund, the main goal of the investment strategy is to generate gains that accrue to individual member account balances in light of the investment goals. The investment strategy thus contributes to the returns obtained on investments, which directly impacts on the financial efficiency of the pension fund (OECD 2006).

The appropriate investment strategy should be anchored on four pillars namely: the prudent person rule (ensuring that all investments made are in the best interests of members), diversification (ensuring that pension investments are not concentrated in a specific asset), maturity matching (ensuring that investments mature as liabilities become due) and it should have a clear statement of investment policies (Kyiv 2003:29).

Despite the higher returns expected from equities, poor global market performance since 2005 has led many institutional investors to shift their investment mix to incorporate more fixed interest securities at the expense of equity investments (OECD 2009b). This was done to mitigate the effects of the low returns noted on equity. Strategic decision-making is therefore related to the investment strategy (Campbell and Viceira 2002:25) since strategic decision-making is the process of setting the parameters of institutional performance, matching its objectives and goals to long-term investment strategies informed by experience and expectations. According to Campbell and Viceira (2002), strategic investment decision-making results in higher returns that contribute to increased efficiency.

5.3 IMPORTANCE OF THE INVESTMENT STRATEGY TO PENSION FUNDS

A good investment strategy results in more returns and lesser risks for pension funds (Kyiv 2003:29; Leisako, Mitchell and Piggot 2005:16). To achieve pension fund efficiency, pension funds must devise sound investment strategies and apply them consistently (Kyiv 2003).
The investment strategy leads to the attainment of the pension fund’s short-term (less than 3 years), intermediate (3 to 10 years) and long-term (more than 10 years) goals (OECD 2009b:12). The investment strategy determines the short-term and long-term sustainability of a pension fund (OECD 2009b; Maurer, Schlag and Stamos 2007:4). In other words, an investment strategy ensures that money is available to pay benefits and other costs as they fall due (Bikker et al. 2009:15). The investment strategy thus provides an appropriate mix between the long-term and short-term financial instruments where the investments are made in consideration of the expected maturity of liabilities (Bikker et al. 2009).

An investment strategy ensures that pension funds do not act haphazardly in times of stock market volatility (Springer and Cheng 2006:2). The strategy ensures that the management is aware of the strategy relating to buying and holding of investments such that assets are purchased when prices are low and short-term ones are disposed of when prices are high (Kake 2006:32).

The investment strategy contributes to better re-investment plans (Eaton and Nofsinger 2001:122). According to Eaton and Nofsinger (2001), the reinvestment plans involve ploughing back the earnings to the same high yielding assets to take advantage of compounding effect. In addition, the investment strategy should result in savings in the form of taxation on the investment returns generated since it focuses on the more tax efficient investments (Kakes 2006:34).

5.4 ELEMENTS OF THE INVESTMENT STRATEGY OF PENSION FUNDS

A pension fund’s investment strategy includes the following basic elements:
- Liability insurance for trustees,
- Independent performance appraisal,
- The investment policy,
- Granting discretion to investment managers and
- Maintaining a risk management policy.
5.4.1 Liability insurance for trustees

In making investment decisions, trustees take risk, for example in setting the investment strategy and policy, funding principles, and the appointment and review of investment managers and consultants (Robinson 2007:35). Robinson (2007) notes that poor investment performance does not in itself mean that trustees failed in their obligations especially if they followed the investment strategy. According to Hustead (2008:4), trustees may shy away from making investment decisions for fear that they will be reprimanded in case of poor performance.

Robinson (2007) further argues that providing the trustees with liability insurance cover encourages them to make candid investment decisions that increases the funds’ returns and sometimes lowers the administrative and investment management costs. Arguing the case for liability insurance for trustees, Hustead (2008:7) notes that a pension fund’s trust deed and rules often give the trustees wide investment powers, but may impose limitations on, for example the types of investment trustees are allowed to make. The liability insurance protects the trustees against litigation if the pension fund made losses as a result of failed investment decisions as long as they were within their rights under the trust deed (Hustead 2008).

The effect of providing liability insurance cover to trustees on pension fund efficiency is investigated in the study.

5.4.2 Independent performance appraisal

Pension funds must assess the performance of their management programmes to ensure stakeholders’ satisfaction (Bertram 2009:6). The objective of the assessment is to determine the effectiveness of the pension fund in meeting the pension promises (Bertram 2009:6). Bertram (2009) classifies performance appraisal in to two: financial (investment performance and funded status) and service delivery.
Impavido (2002:3) suggests that there is a positive relationship between pension fund performance appraisal and returns. According to Impavido (2002) the worst returns are produced by pension funds in countries with poor governance records that do not conduct any performance appraisals to evaluate individual pension fund returns. Independent investment performance appraisal therefore contributes to better governance and higher returns on investments (Impavido 2002).

Furthermore, Clark (2003b:15) recommends the use of the market model according to which pension funds are appraised with deliberate reference to the market opportunities and peer benchmarks of pension provision and fund governance that include cost efficiency, the rate of return and client responsiveness. Clark (2003) suggests that pension funds maintain consistent and timely reporting of performance as well as mechanisms that can identify and distinguish between aberrant and systematic failures in performance.

The present study investigates the influence that independent performance appraisal has on pension fund efficiency.

5.4.3 Investment policy

An investment policy is a written statement that describes the investment strategy of a pension fund (OECD 2006:2). According to OECD (2006:6-7), the contents of the investment policy of a pension fund include the following:

- A description of the retirement fund objective as documented in the trust deed,
- the investment objectives,
- strategic asset allocation strategy,
- overall performance monitoring indicators (such as the stock exchange index, the Treasury bill rates, inflation rates),
- rules for modifying allocations and performance objectives to reflect changing liabilities and market conditions,
- broad decisions regarding tactical asset allocation,
- security selection and trade execution,
- persons responsible for implementation of the investment policy (both internal and external parties),
- investment management agreement with external consultants (indicating the range of activities they have to undertake, their discretion and their responsibility in reporting), and
- the procedure of re-balancing (correcting excesses of investments above the legal limits).

An investment policy involves three main components namely: (1) setting the long-run performance targets, (2) defining an acceptable risk tolerance level and (3) setting parameters for short-term asset allocation (Carmichael and Palacios 2003:19). The policy determines the apparent investment objectives for the pension fund that should be in line with the retirement income goal, the present pension liabilities and a tolerable risk profile that is acceptable to both the sponsor and the members and addresses the balance between risks and returns that improve the pension fund efficiency (Carmichael and Palacios 2003).

Trustees must prepare, maintain and communicate to members a written statement of investment principles that identify the kinds of investments to be held; the balance between different kinds of investments; the nature and extent of risk anticipated in the investment portfolio, the expected return on investments and set forth a policy for assuring compliance with the investment principles stipulated in the trust deeds (Galer 2009:10). According to Rinaldi and Giacomel (2008:17), the guiding factors for selecting the investments are the need to diversify, the suitability of the type of investment for the pension fund and stipulations of risks and returns acceptable to the pension funds. The investment policy is thus a guideline to achieve better pension fund performance through the application of a forward-looking approach.

The investment policy is more central in DC pension funds since the investment risk is borne by the members (Rinaldi and Giacomel 2008:20).
According to Rinaldi and Giacomel (2008), the investment policy in a DC must therefore address “at least, such matters as the investment risk measurement methods, the risk management processes implemented and the strategic asset allocation with respect to the nature and duration of pension liabilities. Galer (2009:6) further requires documents describing the investment policy of a DC to give an explicit warning that members bear the investment risk and that the values are subject to fluctuation.

This study reviews the effect that consistent use of a statement of investment plan has on pension fund efficiency.

5.4.4 Discretion to the investment managers

Pension funds tend to rely heavily on the advice of external consultants when making investment decisions (Chan-Lau 2005:119). Reliance on third parties, according to Chan-Lau (2005) is partly attributed to the trustees’ lack of investment expertise which leads them to give wide discretion on investments to knowledgeable third parties.

Giving more discretion to investment managers is a widespread practice in the pension fund industry (Thompson 2008:12). More discretional power to the fund manager ensures that investment performance is optimised since the investment managers are inherently more informed than the trustees on investment matters (Thompson 2008). Pension funds do increase the role of investment managers in the investment process in order to consolidate various functions of the pension fund with a view of enhancing efficiency (Aon 2005b:1). Increasing the manager’s role in the investment decision reduces the control costs and leverages the investment costs with the value of assets and returns derived on the investments (Aon 2005b).

It is in this context that the present study investigates the effect that discretion of investment managers has on pension fund efficiency.
5.4.5 Risk management policy

Pension funds play a crucial role in providing risk control to households by ensuring that their retirement income is safeguarded (Davis 2000:11). To be able to provide others with a safety net, pension funds should themselves have appropriate risk management policies that safeguard the replacement rate, investment safety and the time-based risks such as inflation (Davis 2000). Moreover, risk management by pension funds should link directly to the portfolio objectives and maintain a balance between assets and liabilities in the context of funding, immunisation and the use of derivative securities (Galer 2009:13).

Litterman (2003:36) links risk management to the tactical investment decision-making aspect. Tactical decisions are taken in response to unanticipated market events given a previously agreed investment strategy (Litterman 2003). According to Rinaldi and Giacomel (2008:24), a risk management policy cushions against unanticipated events in the investment decision implementation process and is therefore core to a successful investment strategy since it focuses on the timeliness and sensitivity of the returns generated by the investments thus increasing the pension fund’s returns.

Pension funds need to develop a risk management framework to ensure that the investment goals are achieved (Amana 2009:3). Such a framework includes, portfolio diversification aimed at minimising the overall risk, active portfolio management, asset allocation, tactical asset allocation that ensures an acceptable risk tolerance strategy, research driven investment strategy that results in stock picking and the use of derivative securities to minimise portfolio volatility thus increasing the pension fund’s returns (Amana 2009).

The effect of risk management policies of pension funds on pension fund efficiency is also investigated.
5.5 PENSION FUND ETHICS

Ethics refers to benchmarks of conduct that indicate how individuals should behave based on moral duties and virtues, which themselves are derived from principles of right and wrong (Hugman 2008:443; Baron 2008:18; Andreoni 2007:89; Save-Soderbergh 2009:3; Gordon 2003:2; Ryan and Dennis 2006:316; Sparkes 2002:3). Hugman (2008) suggests two aspects of ethics: (1) discerning right from wrong, good from evil, and propriety from impropriety, and (2) the commitment to do what is right, good and proper. Like any other business concern, pension funds are subject to ethics relevant to the pension fund industry. Save-Soderbergh (2009) suggests that ethics contributes to long-term sustainability of pension funds and ensures a highly regarded decision-making framework.

5.5.1 Ethics in the pension fund industry

According to the Social Investors Forum (2007), cited in Clark and Urwin (2009:2), an ethics framework should view trustees as being individually and collectively subject to the common law, statutes and fiduciary responsibilities to the members of the pension fund. Trustees are therefore inherently bound by some degree of ethos to which they should adhere to in decision-making (Clark and Urwin 2009).

Empirical studies (Roe 2006:468; Merton and Bodie 2005:23; Clark 2007:16) report a link between pension fund trustees upholding ethical behaviour and the achievement of long-term objectives set in the trust deed. According to Clark (2007:16), ethical behaviour should ensure that pension funds are managed diligently, pension laws are followed and all disputes are sorted out without fear or favour and there is explicit communication to all the interested parties. Ambachtsheer et al. (2007b:8) however found that unethical behaviour in pension funds in decisions relating to investments, benefit promises and fund performance does exist.
Ethical investing involves assessing extra financial risks in investments and in particular those related to environmental, social and corporate governance variables (Yermo 2008b: 34; FOE 2009:3; OECD 2009c:4). Firms, including pension funds are increasingly screened for unethical investing.

Gifford (2004:4), Walsh et al. (2007:36), Yermo (2008b: 34), the OECD (2007:4) and the Norwegian Government (2009:4) differentiate between negative and positive screening with regard to pension fund investments. Gifford (2004:4) defines negative screening as “the practice of avoiding or divesting the shares of companies with poor social, environmental and ethical performance.” The OECD (2007a:28) cites negative screens as alcohol, tobacco, gambling, nuclear power, firearms, irresponsible foreign operations, abortion and pornography. Positive screening on the other hand involves actively investing in companies that have good social, environmental and ethical performance (OECD 2007a). Examples of positive screens are investing in companies that mind long-term sustainability, environment protection and involvement in corporate social responsibility aspects (Walsh et al. 2007:37).

Walsh et al. (2007:39) found that one-third of pension funds in Australia restrict investments in tobacco industries. In Sweden many pension funds prohibit investments in alcoholic companies, tobacco companies, enterprises that engage in child labour and companies that degrade the environment (Save-Soderbergh 2009:4). The Norwegian Government Pension Fund prohibits investment in companies which are involved in serious human rights violations (murder, torture and forced labour) and corruption (Save-Soderbergh 2009). In the USA, pension funds demanded that their investments be withdrawn from South African companies in the campaign against apartheid (Sparkes 2002:53).

5.5.2 Ethical guidelines for pension funds

Ethical guidelines for pension funds are aimed at ensuring that pension funds are well managed so as to generate a sound return in the long-term and to
ensure that pension funds do not make investments that constitute an unacceptable risk that may contribute to unethical acts or omissions such as violations of fundamental humanitarian principles, abuse of human rights, gross corruption or severe environmental damages (Merton and Bodie 2005:22).

Trustees make decisions about beneficiaries’ best interests, and are therefore required to act in a collegial manner with respect to the long-term objectives as much as they do to the short-term objectives (Clark and Urwin 2009:6). In this regard, the ethical guidelines that they should follow include confidentiality in matters relating to trusts, sponsors’ influence, honesty in information sharing, avoiding conflict of interests with the service providers, avoiding bias in decision-making and proper utilisation of authority. Each of these attributes is discussed and investigated in turn in the present study.

5.5.2.1 Confidentiality

Effective pension leadership calls upon the various participants to regard trust matters as confidential (Clark and Urwin 2009:17). Pension fund leadership should not make use of official information for their personal gain neither should they avail the information for use by parties that were not intended since breach of confidentiality results in abuse of trust (Clark and Urwin 2009).

Galer (2009:6) links governance with confidentiality. According to Galer (2009), the rule of prudence must be accompanied by the duty of confidentiality and loyalty that requires trustees to administer the pension fund solely in the interests of the members. The pursuance of member interests, often expressed in terms of their “best”, “sole” or exclusive interest, ensures that the trustees are accountable and collectively contribute to ethical decisions that increase the pension fund’s returns.

The confidentiality aspect requires trustees not to disclose pension fund matters relating to specific individuals to the public unless it is required by law
or authorised by the person to whom the confidential information relates (CFA 2008). Confidential information must however not be used for the trustees’ personal benefit or for the benefit of a third party.

5.5.2.2 Independence from the sponsor

Pension fund sponsors have immense responsibility in the making of tactical and operational decisions of a pension fund (Clark and Urwin 2009:5). According to Clark and Urwin (2009), sub-optimal decisions are often made because the sponsor’s involvement is sometimes viewed as an increased cost. Clark and Urwin (2009) thus suggest that pension funds maintain autonomy from the sponsor to enhance balanced decision-making in their retirement plans.

According to the CFA (2008), to maintain independence and objectivity trustees must avoid interest, refraining from self-dealing, and refuse any gift that could reasonably be expected to affect their loyalty to the pension fund.

5.5.2.3 Honesty in communication to members and trustees

Individual trustees occasionally fail the honesty test in communication to members and other trustees (Clark and Urwin 2009:11). This, in the view of Clark and Urwin (2009), is attributed to the fact that many trustees are doubtful of their colleagues’ competency. The authors also found that pension trustees in the United Kingdom do not trust the judgment of their colleagues thus making it difficult for the fund boards to reach an informed and shared decision without an agreed process of reconciliation and the active involvement of skilled and knowledgeable board chairpersons and advisors. This compromises effective decision-making and consequent financial efficiency of the pension funds.

Information that should be communicated to members and other trustees include; the pension plan’s mission, investment, governance, conflict of interest and code of conduct policies, the investment process, administrative
cost structure, investment returns, criteria for selection of service providers, results of the self assessment of governance mechanisms, the audit report, remuneration of key individuals and groups and the key assumptions that underlie the preparation of financial reports (Impavido 2002:26). According to Yumeng (2006:9), the communication strategy used should be personal, tailored for individual members and should deliver information in a clear language free of academic jargon. This, in the view of Yumeng (2006), will ensure that the message is clearly understood by the audience and will enable the members to be better decision makers. Communication clarity could also reduce unethical behaviours.

5.5.2.4 Avoiding conflict of interest with service providers

Clark and Urwin (2009:6) advise pension fund trustees to avoid conflict of interest with service providers in order to be able to monitor and exercise oversight responsibilities over them. Conflict of interest impairs the trustees’ monitoring and oversight roles (Clark and Urwin 2009).

OECD (2009c) guidelines on governance require a formal conflict-of-interest policy, accompanied by regular reporting on compliance with the policy, disclosure, and recording of conflict in meeting minutes for pension funds. The OECD (2009c) further recommends that the policy should “prevent even the appearance of a conflict of interest,” acknowledging the old adage that perception is reality.

5.5.2.5 Avoiding bias

According to Krueger and Funder (2004:317), various errors of judgment result in bias in decision-making. These errors of judgment are made by individuals who tend to be over-confident, are inconsistent and unjustifiably risk-averse that influences their ability to make judgments that promote economic efficiency (Krueger and Funder 2004).

Decision biases can be eliminated, or considerably reduced by representation of the beneficiaries and stakeholders (Clark 2007:19). The representation of
sponsors, unions, retirees and active members in the board is important to achieve pension fund efficiency.

5.5.2.6 Proper utilisation of authority

Clark and Urwin (2009:10) identify seven attributes on which the pension fund leadership should provide direction and ensure proper utilisation of authority to the best of the interests of the stakeholders. These attributes are: effective allocation of resources, staffing of the fund and the framing of delegation of authority; leadership with respect to the external service providers; sensitivity in the management of stakeholder expectations; focus on the pension fund’s mission, vision and organisation culture; accountability and measurement of performance. Proper use of authority in the execution of the seven tasks signals efficiency in the operation of the pension fund affairs (Clark and Urwin 2009).

5.6 SUMMARY

In this chapter the significance of the investment strategy and fund ethics as factors affecting pension fund efficiency were discussed. While the investment strategy designates the mix of funds between fixed return and fluctuating return investments, ethics portray the benchmarks of behaviour that pension fund management should adhere to. Important elements of investment strategy identified in this chapter include liability insurance for trustees, investment performance appraisal, investment policy and the maintenance of a risk management policy. These elements will be included in the hypothesised model to improve pension fund efficiency.

The next chapter reviews the final selected set of determinants of pension fund efficiency which include pension fund risk, design, age of members and size.
CHAPTER 6

PENSION FUND RISK, DESIGN, AGE OF MEMBERS AND SIZE

6.1 INTRODUCTION

This chapter addresses four determinants of pension fund efficiency namely pension fund risk, design, age of members and the size of the fund. The first part discusses the typical risks that pension funds are exposed to, the second part expounds on the role of pension fund design in enhancing pension fund efficiency while the last part reviews the question of the appropriate size of a pension fund.

6.2 PENSION FUND RISK

6.2.1 Defining pension fund risk

Applied to pension funds, risk reflects any variable that prevents a pension fund from achieving its intended objectives of providing adequate retirement income (Mangiero 2006:8; Yermo 2007:3). The impediments to pension fund objectives may include failure by the sponsors to meet their promises, stock market volatilities and operational inadequacies (Mangiero 2006).

According to Mangiero (2005:22), “pension fund risk management implies management of multiple risk types – such as financial, operational and legal risks and assumes the use of derivatives.” Mangiero (2005) thus views pension fund risks as including both operational and financial uncertainties.

Pension fund risk management involves five steps namely identification (threats and opportunities), evaluation, prioritisation, treatment (accept, mitigate, exploit or avoid) and monitoring (Blake 2007:3-5). According to Blake (2007), pension fund risk management is a structured process that should be handled with expertise to optimise pension benefits. It involves the
measurement and assessment of pension fund risks and the design, monitoring and revision of the pension fund’s parameters (contributions, benefits and investments) in order to address these risks in line with the fund's objectives (Blome et al. 2007:5). The main goals of pension fund risk management are the minimisation of pension costs and minimisation of the chances of benefit cuts to beneficiaries (Blome et al. 2007:5).

### 6.2.2 Importance of pension fund risk management

Retirement risk management has become important as a result of the global demographic aging coupled with social security benefit cuts and the volatile stock market returns (Maurer, Mitchell and Rogalla 2008:9). The major concern for pension fund stakeholders has been the variability of the value of pension fund investments which have always been based on the aberrant market values (Maurer et al. 2009).

Bikker et al. (2009:19) concur that pension funds are instrumental in the transfer of risk from individuals to collectives and hence are better risk managers compared to individual investors since they have incentives to invest long run and bear the long-term risks. The collectivism of the pension fund members enables them to bear risk that would have been otherwise avoided thus making them more efficient (Bikker et al. 2009).

Pension fund risk management is important since risk tends to reduce the returns on investment over the long run, creates uncertainty about the value of pension assets when pension liabilities become due and raises questions that impact on the governance aspect of pension funds when irregularities and market volatility lead to losses in the pension funds (Maurer et al. 2009:10).
6.2.3 Pension fund risk exposure

The nature of pension funds exposes them to different aspects of risk. Key amongst these risks is default risk from employers and employees, stock market risk, operational risks and liquidity risks. Each of these elements of pension fund risks is discussed in turn. Fund risk exposure as well as the management thereof is also investigated in the present study.

6.2.3.1 Default risk by the sponsors

According to Rauh (2006:35), sponsors must make financial contributions to a pension fund. These contributions have a direct impact on a firm’s internal financial resources hence if a firm is financially constrained, contribution requirements may affect its ability to make new investments, conduct research and developments and make acquisitions (Rauh 2006). Rauh (2006) suggests that financial constraints may lead the sponsor to default on making contributions to the pension funds that may lead to financial inefficiency of the pension funds.

Mitchell, Mottola, Utkus and Yamaguchi (2009:3) and Stewart (2007:4) note that default options amongst the sponsors have increased in the recent past since enactment of “opt-out legislation” with regard to the pension funds in the United States, which allows DB sponsors to stop contributing to pension funds for some time if their pension funds have high values. Mitchell et al. (2009) suggest that the sponsor in a DB plan can default on contributions especially where they realise that pension assets have grown to a level where they can fund the pension liabilities. Additionally, Mitchell et al. (2009) show that the pensions administration (trustees and fund managers) often does not ensure that all payments due to and from the fund, through the whole of the employee and employer lifecycle, are made and accounted for fully and accurately and in a timely fashion.
6.2.3.2 Default risk by employees

Thompson (2008:17) classifies default risk due from the employees as the counterpart default risk. It arises explicitly when a counter party fails to meet its obligations and it directly contributes to poor pension fund performance since the pension fund does not gather enough funds for investment.

Kakwani et al. (2006:14) expound on the reasons that may lead employees to default on their own retirement savings. According to Kakwani et al. (2006), these reasons include: low incomes thus encouraging immediate consumption, younger aged members who tend to postpone saving for retirement, lack of confidence on the existing retirement savings options and high levels of unemployment. These actions in the authors’ view may lead to dismal participation and performance of the pension funds.

6.2.3.3 Stock market risk

Thompson (2008:17) and Franzoni and Marin (2006:931) describe the market risks as the chances of loss due to movements in interest rates, lower stock prices and other market forces. Thompson (2008) visualises stock market risk as uncontrollable within the context of pension funds that results in unpredictable changes in the stock and bond prices.

According to Chan-Lau (2005:116), market indicators should be referred to in determining the extent of market risk. They include: market liquidity and volatility, market regulation, the adequacy of the legal system, investor protection rules, capital market operations, settlement proficiency and market costs. Chan-Lau (2005) thus suggests that the market risk is a function of legal and macro economic factors that investors should observe closely.

Pension fund operations are constrained by the market risk-return spectrum that provides for a compromise between risks and returns (Dobronogov and Murthi 2005:33). This risk element limits pension funds from investing their
entire pension finances in very high return assets forcing them to invest in inefficient portfolios that blend high return with low return security (Dobronogov and Murthi 2005).

According to Bohl, Gottschalk and Rozalia (2006:4), seasonal patterns in stock market returns constitute a challenge to institutional investors especially the pension funds. This volatility results to dismal performance since pension funds are not able to take advantage of the favourable movements yet they always suffer the adverse movements (Bohl et al. 2006).

One of the problems associated with the funding crisis affecting many pension funds is the lower value of stock prices since they represent the current market prices (Weller 2005:11). Unfortunately many funds, according to Weller (2005), do not have enough reserves to cushion the stock market risk thus leading to further under-funding.

According to Weller (2005:13), the stock market risk can be cushioned by setting up reserve funds to cater for unexpected stock market shocks. More contributions to the fund should be made during periods of economic recession and be reduced as the economic situation improves (Weller 2005).

6.2.3.4 Operational risks

Operational risks originate from inadequate internal processes, people and systems (Thompson 2008:17). These risks impact on pension funds since the latter are mandated to follow legal procedures and put in place mechanisms that ensure that pension promises are fulfilled and the pension fund is operationally efficient (Thompson 2008).

According to Cummins and Rubio-Misas (2004:3126), pension funds incur operational risks since life events relating to pension scheme members (including transfers out, retirement, death, and deferred membership) are not processed and recorded completely and accurately and in accordance with
the pension fund rules. Cummins and Rubio-Misas (2004) thus suggest that managing with operational risks contributes to efficiency through timely and complete recording and processing of pension fund transactions.

6.2.3.5 Liquidity risks

Thompson (2008:17) defines liquidity as the risk that an institution will not be able to meet its payment obligation as they fall due. Low liquidity risk contributes to pension fund efficiency since the pension fund will be able to cater for its retirement and other obligations as and when they fall due (OECD 2000:16). The OECD (2000) documents the risk of dismal performance of pensions due to uncontrollable occurrences from the point of view of the sponsors and contributors, which encompasses exposure to liquidity risks. To deal with liquidity risks, receivables should be identified, requested and received when asked for according to predefined schedules, and accurately recorded in the correct accounting period in the pension funds’ books of account (Tonks 2005:1924).

6.3 PENSION FUND DESIGN

Besley and Prat (2005:120) define pension fund design as the institutional framework under which pension fund issues are regulated, which guarantees that pension promises are met. The two possible pension fund designs are the defined benefit (DB) and defined contribution (DC) (Besley and Prat 2005). Odundo (2006:6) and Ghilarducci and Terry (1999:11) describe a defined benefit scheme as one that defines or specifies the benefits payable on retirement. A defined contribution pension fund is one that defines or specifies the contributions payable to the pension fund over the years that the employee is in service (Besley and Prat 2005). The fundamental difference between DC and DB therefore, is the determination of the benefits (Ghilarducci and Terry 1999:11; Aon 2005b:3).
Because of their nature, DB schemes are more susceptible to employer control as opposed to employee influence (Odundo 2006:9; Besley and Prat 2003; Fortune 2005: 32; Weller 2005:3; Cameron 2007:14; Moran 2006:4). Odundo (2006) adds that in a DB, the benefits payable are determined on a specific formula, namely:

\[
\frac{1 \times \text{Years of service} \times \text{Salary}}{\text{Pension factor}}
\]

The salary in the formula is usually the final salary or an average of the last three years' salary; the pension factor is the amount of income replacement that the sponsor is willing to provide for employees in retirement and is usually advised by an actuary.

Expounding on the differences between the DB and DC funds, Davis (2000:4) suggests that with the DC, the returns to members are purely dependent on the market while the employer guarantees those of the DB. Accordingly, DB funds have insurance features in respect of replacement ratios (pensions as a percentage of income at retirement) subject to the risk of bankruptcy of the employer as well as potential risks for transfers between older and younger beneficiaries which are absent in the DC funds (Davis 2000). DB pension funds are more expensive to operate compared to the DC (Davis 2000). Table 6.1 summarises the distinguishing characteristics of DB and DC funds.

Table 6.1 shows that both DB and DC design have their respective merits. However, with regard to investment returns the dominance of the DB or DC depends on investment performance since DC pension fund members can potentially bear investment risk. They have the potential to earn more benefits if they make correct choices and the investment environment favours them. To the contrary, DB members can potentially earn more than their DC counterparts. Additionally, with regard to the wage path risk, DB retirement benefits tied to final wage could provide members with a type of income maintained insurance not available to those in the DC pension funds. On the other hand, if the wage paths are unpredictable it might be risky to tie one's pension benefits to the final wage.
In Kenya, the predominant design is the DC scheme (Odundo 2006:3). Odundo (2006) shows that at the close of 2006 only 30% of the pension funds operated as DB mostly in the public organisations, quasi-public enterprises and big private multinationals. Odundo (2006) shows that the key problems affecting the DB were the restraints that they impose on job mobility (employers restrict pension withdrawal when the employee leaves employment), high costs of operation, many of them are non-contributory (only the employer contributes to the scheme), many of them were under-funded, high default risks from the employer and the failure to separate pension fund assets and liabilities with those of the sponsor.

**TABLE 6.1: COMPARISON OF DB AND DC PENSION FUNEDDESIGNS**

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>DB DESIGN</th>
<th>DC DESIGN</th>
<th>DOMINANT DESIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Choices</td>
<td>Members have no control over the investment of pension money.</td>
<td>Members participate in making the investment decisions</td>
<td>DC</td>
</tr>
<tr>
<td>Investment risk</td>
<td>Members do not bear the investment risk</td>
<td>Members bear all the investment risk</td>
<td>DB</td>
</tr>
<tr>
<td>Investment returns</td>
<td>Members can only collect the benefits defined in the DB formula even if the investments have favourable returns</td>
<td>Members are entitled to all investment returns</td>
<td>Not clear</td>
</tr>
<tr>
<td>Termination and portability</td>
<td>Members leaving their jobs forfeit the benefits already accrued.</td>
<td>Members can roll over and keep investing</td>
<td>DC</td>
</tr>
<tr>
<td>Incentives</td>
<td>Members have greater incentives to sustain a high level of effort over the entire career in order to achieve a high career-end salary</td>
<td>Members have less incentive over their entire life than in the DB design since their DC benefits depend upon the wage trajectory over their entire life.</td>
<td>DB</td>
</tr>
<tr>
<td>Wage-path risk</td>
<td>Retirement benefits are tied to wage used in the formula, mostly the final wage.</td>
<td>Retirement benefits are tied to career average earnings</td>
<td>Not clear</td>
</tr>
<tr>
<td>Life annuity</td>
<td>DB scheme usually offers a life annuity with favourable mortality rates</td>
<td>Most DC funds distribution in a lump sum. Participants might face unfavourable mortality rate when purchasing annuity in the market due to adverse selection problem.</td>
<td>DB</td>
</tr>
</tbody>
</table>

Source: Yang (2005:40)
Odundo (2006:10) notes that many pension funds in Kenya are converting their designs from DB to DC or hybrid schemes. To facilitate these conversions, the Kenyan RBA (2006) has set specific guidelines which include triennial actuarial review; sponsors to seek approval from RBA trustees to pass a documented resolution; only funded DB to be converted; members to be educated and must give consent; and the importance of a condition that members must not lose benefits due to conversion. The conversion from DB to DC is supposed to enhance efficiency of the pension funds (Odundo 2006).

The present study investigates the effect that pension fund design has on pension fund efficiency.

### 6.4 AGE OF MEMBERS

According to Augusztinovics (2002:22), the ageing of the population is a cyclical process rather than a continuous one. The current ageing crisis is attributed to the number of births in the 1950s, the “baby boom” and its echo in the late 1970s. These factors have caused oscillations in the age structure of the world populations and forced policymakers to address age demographics in a bid to improve pension fund efficiency (Augusztinovics 2002).

Whelan (2005:8) and Davis and Hu (2005:16) revealed that extended life expectancies, coupled with lower fertility rates forced pension funds to rethink their investment strategies. According to Whelan (2005), pension funds with younger members can invest more in equities and more risky assets as opposed to the ones with older members who invest more in fixed return securities and guaranteed funds. The age of the members of a pension fund can therefore influence the investment strategy and the consequent levels of efficiency.
Another factor related to ageing and the provision for retirement noted in Whelan (2005:11) is the fact that young people do not take saving for retirement seriously since they consider it a long-term venture. It is against this background that Whelan (2005:11) quotes Daniel Defoe (1697) that “some men have less prudence than brutes, and will make no provision against age until it comes.” Many people therefore rush to make retirement decisions, as they grow old, which reduces the funds available to pension funds for investment in their early years (Whelan 2005).

The present study investigates the influence that the age of members in the pension fund has on pension fund efficiency.

6.5 SIZE OF THE PENSION FUND

One of the controversial issues in pension fund management literature is the relationship between fund performance and the size of the pension fund. Research literature points to a positive relationship between fund size and fund performance (Bikker and Dreu 2009:4; Chen, Hong, Huang and Kubit 2004:1284; Mahon and Donohoe 2006:4; Ahmad 2009:5; Vittas, Impavido and O’Connor 2008:1; Ardon 2006:4). By implication, the bigger the pension fund the better the performance of the fund (Dahlquist, Engstrom and Soderlind 2000:415; Gallagher and Martin 2005:59-60). On the other hand, Chan, Faff, Gallagher and Looi (2004:6) found no association between the fund size and performance. Empirical studies are therefore still inconclusive on the optimal size of a pension fund.

The issues of economic and efficient administration of pension funds and its relation to size were first documented in Caswell (1976). According to Caswell (1976), pension funds in the construction industry experienced economies of scale that were related to their size. Caswell (1976) defined economic efficiency as consisting of the achievement of predetermined objectives with a minimum expenditure of resources. Economies of scale are defined as the relationship between changes in the physical units of output and monetary
costs associated with the inputs. Pension funds should operate at the appropriate scale; not too big, not too small (Caswell 1976).

According to Mahon and Donohoe (2006:4), Blake, Lehmann and Timmermann (2001:16) and Zera and Madura (2001:247), significant economies of scale exist in pension fund administration. They suggest that smaller pension funds bear excessive operating costs per participant since many of their expenses are fixed. The most important factor affecting pension fund costs therefore is size determined on the basis of the number of members in the pension funds (Mahon and Donohoe 2006).

Recognising the dramatic effects that pension fund size can have on performance, the Irish Funds Industry Association (2009:2), cited in Mahon and Donohoe (2006), urges small pension funds to pool their assets. According to the association, pension pooling would allow pension funds to “pool” assets into a single investment vehicle that would invest in assets, such as global equities, bonds and cash on behalf of the investing pension funds. The argument expounded is that pooling would result in considerable economies of scale, which would in turn lead to cost savings and enhanced returns to provide greater consistency in asset management and enhance control over risks.

Pension funds in Nigeria followed the merger directives imposed on commercial banks which resulted in pension funds being able to absorb and efficiently process information on capital market operations (Ahmad 2009:5). Through these mergers, large pension funds were created which resulted in lower average transaction costs and custodial fees for the investors. The mergers thus made pension funds to be more efficient.

Vittas et al. (2008:1), however, observed that large pension funds enjoy the benefit of low operating costs because they avoid large marketing costs. These economies may however be eroded by poor investment performance,
weak governance structures, lack of independence from the sponsor and low levels of accountability and transparency (Vittas et al. 2008).

In Massachusetts smaller pension systems face diseconomies of scale in their administration and management which resulted in higher costs (Ardon 2006:4). Ardon (2006) shows that out of the 106 pension funds he surveyed, 26 pension funds had less than $50 million in assets and only one with $750 million yet each pension fund had the same number of administrators and staff as well as advisors and consultants. The smaller funds recorded administrative costs equal to 0.78% of their asset values whilst the bigger funds recorded administrative costs of 0.44% of the asset values (Ardon 2006). Very small pension funds are therefore uneconomical to operate and will result in low levels of efficiency. Faktum (2009:3) found that Danish pension companies are the lowest cost operators in the OECD countries since the pension funds operate at ideal sizes “not too big, not too small.”

Furthermore, pension plan assets tend to increase with the number of employees (Henon and Kanouse 2004:11). Comparing the value of assets with the number of employees in the pension fund, Henon and Kanouse (2004) found that 62% of pension funds with 25,000 or more employees have asset values exceeding $1 billion while only 74% of the pension funds with 1,000 – 2,499 employees have asset values averaging $20 billion.

Large pension funds are also more efficient than the smaller ones because there are significant economies of scale in paying benefits, keeping records and investing funds effectively (Ghilarducci and Terry 1999:12). In large pension funds technological advances permit a reduction in expenses, internal reorganisation produces price advantages and cost reductions. Greater specialisation improves efficiency (Ghilarducci and Terry 1999).

Henon and Kanouse (2004:15) however caution that large pension schemes are not necessarily efficient if proper tools and processes are not in place. Without the latter, large pension funds spend a lot of money on communication to members, member education, investment decisions,
collecting contributions from workers, keeping records, paying benefits to pensioners and general administration (Henon and Kanouse 2004).

The debate of whether larger funds outperform smaller ones is therefore ongoing. The present study also investigates this issue.

6.6 SUMMARY

Chapter six provided a literature overview of four determinants of pension fund efficiency namely pension fund risk, design, age of members and size. It has expounded risk as the variability that creates uncertainty in operations. Two pension fund designs were identified: the defined contribution (DC) and defined benefit (DB). The age profile of members determines the investment strategy to be adopted by a pension fund while the issue of pension fund size still needs to be further explored.

Using a selection of variables from the preceding literature reviews, the following chapter proposes a theoretical model to improve pension fund efficiency.
CHAPTER 7

THEORETICAL MODEL TO IMPROVE PENSION FUND EFFICIENCY

7.1 INTRODUCTION

This chapter provides the theoretical basis for the hypotheses formulated in this study. It addresses the variables that have hypothesised effects on pension fund efficiency. These variables include governance, pension fund regulations, investment strategy, fund ethics, fund risk, design, size and the age profile of members.

7.2 OPERATIONALISATION OF THE VARIABLES

Before the theoretical model is discussed, it is important to clarify the variables used in this model.

7.2.1 Operational efficiency

According to Harris (2006:20), operational efficiency arises when the right blend of people, process, and technology is employed to boost productivity and value of any operation at the lowest cost possible. Operational efficiency is thus realised when waste of time and other resources are minimised (Harris 2006).

In this study, operational efficiency in the context of pension funds is captured through, minimisation of administration, investment and compliance costs, timely processing of pension benefits, implementation and compliance with an effective internal control system, efficiency in the conduct of trustee meetings, timely reporting to stakeholders, increasing the rates of return, involving members in decision making, pension funds having autonomy from the
sponsor, achieving appropriate funding levels, competitive appointment of service providers and timely compliance with the pension law.

7.2.2 Financial efficiency

Financial efficiency was determined by use of Data Envelopment Analysis (DEA) for each pension fund for the eight financial years commencing 2001. The efficiency score generated by DEA is a quotient of the weighted value of outputs and the weighted value of inputs (Brocket and Golany 1996:4); Dyson, Allen, Camanho, Podonoviski, Sarrico and Share (2001:247).

Pension fund inputs used in this study are contributions, administration expenses, investment management expenses and the fund value at the beginning of the financial year. The pension fund outputs used in the study were; benefits payable per retiree, investment incomes and the fund value at the end of the financial year.

7.2.3 Fund governance

Empirical studies (Carmichael and Palacios 2003; Stewart 2009; Teisseire 2009; Clark2003b; Ambachtsheer 2007b; Steele 2006; Clapman 2007; WCM 2006; Casanova 2001; Moriarty and Zadorozny 2008; Clark and Urwin 2008 and OECD 2009b) document a list of governance attributes of a pension fund. The elements of pension governance elucidated in the studies and used in the present study include composition of the board of trustees, effect of the CEO on the leadership of the pension fund, finance education to trustees, liability insurance cover for trustees, appointment of service providers, adhering to a set of internal controls, communication to members, avoiding conflict of interest in decision-making, monitoring performance of service providers, defining the roles of trustees, defining the roles of service providers, having an effective performance measurement system and outsourcing specialised fund management functions.
7.2.4 Fund regulations

Elements of pension regulations and its effects on pension fund efficiency were tested, include the regulation of compliance costs, size of the pension fund board, service providers, taxation of pension funds, compulsory levies, annual meetings, risk based supervision and quantitative restrictions on pension fund investments.

7.2.5 Investment strategy

According to Asebedo and Grable (2004) and Stanko (2002), the investment strategy results in the investment mix that an enterprise employs, which is subject to management discretion. In the present study, the investment strategy is captured along the following dimensions, liability insurance for investment decision makers, independent performance appraisal, the investment policy, granting discretion to investment managers and maintaining a risk management policy.

7.2.6 Fund ethics

The present study uses the pension ethics’ framework developed by Clark and Urwin (2009) to establish ethical behaviour in Kenyan pension funds. The framework includes the following attributes confidentiality in trusts matters, sponsor’s influence, and honesty in information sharing, avoiding conflict of interest with the service providers, and avoiding bias in decision-making and proper utilisation of authority.

7.2.7 Pension fund risk

Different studies (Maurer et al. 2009; Bikker et al. 2009; Rauh 2006; Mitchell et al. 2009; Thompson 2008; Dobronogov and Murthi 2005) argue that pension fund risk encapsulates the default risk from employers and
employees, stock market risk, operational risks and liquidity risks. These are the dimensions along which pension fund risk is captured in the present study.

7.2.8 Pension fund design

Pension funds operate under the defined benefit or defined contribution designs (World Bank 1994; Besley and Prat 2005; Andrews 2006), but hybrid designs are also possible (Kerrigan, 2008). The present study compares pension fund efficiency amongst the varying designs.

7.2.9 Age of the members

The current study captures the average age of pension fund members as a determinant to pension fund efficiency

7.2.10 Fund size

Empirical studies (Caswell 1976; Mahon and Donohoe 2006; Bikker et al. 2009; Chan et al. 2004; Ahmad 2009; Vittas et al, 2008; Faktum 2009; Henon and Kanouse 2004; Ghilarducci and Terry 1999) recognise the pension fund size as the number of members of the fund, which is also adopted in the present study.

7.3 RELATIONSHIP BETWEEN PENSION FUND GOVERNANCE AND EFFICIENCY

Pension fund governance has direct implications on retirement income as it influences the administrative efficiency and the investment strategies that pension funds use (OECD 2009b:1; Carmichael and Palacios 2003:15; Hustead 2008:5).
Pension fund performance is strongly correlated with governance indicators (Ambachtsheer 2001:23; Impavido 2002:3). Appropriate pension fund governance structures result in cheaper operating costs and ensures that benefits are paid on time (Smalhout and Vittas 2000:8; Steele 2006:45). Impavido (2002:3). This suggests that, to improve pension fund performance, pension governance must be addressed. According to Impavido (2002:5), these governance variables are financial literacy of pension fund managers, balancing power, effective appointment and supervision of service providers, efficiency in time management, a high level of trust amongst trustees and members, clear definition of duties of trustees and service providers and the separation of the sponsors’ business from the pension fund management.

According to Stewart (2009:2) and Bikker and Dreu (2009:15), appropriate pension fund governance improves performance of the pension fund and creates trust amongst the stakeholders. Application of the prudent person rule and governance code of conduct improves pension fund efficiency (Galer 2009:27; Casanova 2001:52) since it influences investment performance and reduces transaction costs and investment management fees. Effective pension fund governance is thus a vital element for the efficient functioning of private pension systems.

Pension governance includes training trustees in the core skills required to effectively manage and supervise operations of the fund (OECD 2009b:6; Clapman 2007: 10; Teisseire2009:4; Lusardi and Mitchell 2007a:13; Mitchell and Yang 2005:28; Ambachtsheer 2008b:19). Equipping the pension fund’s board of trustees with finance education improves the quality of their investment decisions and consequently achieves a higher level of efficiency (Teisseire 2009).

Given the above-mentioned background, the following hypotheses are formulated:

\[ H1a: \quad \text{Pension fund governance exerts a positive influence on pension fund efficiency (as measured by operational efficiency).} \]
H1b: Pension fund governance exerts a positive influence on pension fund efficiency (as measured by financial efficiency).

7.4 RELATIONSHIP BETWEEN PENSION FUND REGULATIONS AND PENSION FUND EFFICIENCY

The major reason why many developing countries fail to optimise pension fund efficiency is the existence of many laws that pension funds are obliged to subscribe to (World Bank 2004:4). The multiplicity of fragmented laws increases compliance costs and therefore calls for a unified pension law within a country or block of countries (World Bank 2004). Asher and Nandy (2006b:274) found that the lack of coordination of the six pension laws in India have resulted in haphazard action and an increase in pension fund costs that reduces the pension benefits.

According to Hu, Stewart and Yermo (2007:4-5) and Madero and Lumpkin (2007:8) pension assets increased significantly in all the OECD countries as a result of implementation of quantitative asset restriction and the prudent person laws. The quantitative asset restriction legislated on the maximum percentages that could be invested in specific classes of assets, while the prudent person rule legislated on a code of governance (Hu et al. 2007). Moreover, Hu et al. (2007:11) showed that in China, pension regulations on investments and governance resulted in more robust risk control mechanisms, better investor protection, more transparent information disclosure and subsequent stability of the pension funds.

Eijffinger and Shi (2007:1) attribute pension crises in the European Union to regulatory failure. The pension crises have made pension funds inefficient and unable to deliver on their promises to the stakeholders and so pension laws should be created in licensing, governance, asset restrictions, financial information disclosures and guarantees (Eijffinger and Shi 2007). Shah (2005:12) found that legislation on governance, design, financial reporting and service providers improve efficiency where as the regulations on tax on
pension benefits taxation, premature withdrawals of benefits and investment restrictions reduces pension fund efficiency.

Pension fund regulations affect funding costs that in effect have a strong influence on the investment and contribution strategies of pension funds (Blome et al. 2007:38). Blome et al. (2007) conclude that funding regulations that require full funding ignore the market-based solvency rules thus limiting creativity on the part of the pension fund managers who eventually fail to maximise pension fund returns.

Pension funds in the United Kingdom are more operationally efficient compared to their OECD counterparts in Kenya as a result of adopting a risk based supervision approach that focuses more on the ability of the pension funds to abide by the trust documents and monitor their activities (Blome et al. 2007:52). Far-sighted and proactive regulations should therefore be made to ensure that pension funds do not renege on their promises (Odundo 2008).

Based on the preceding literature review, the following hypotheses are formulated.

\[ H2a: \text{Adherence to pension fund regulations exerts a positive influence on pension fund efficiency (as measured by operational efficiency)} \]

\[ H2b: \text{Adherence to pension fund regulations exerts a positive influence on pension fund efficiency (as measured by financial efficiency).} \]

7.5 RELATIONSHIP BETWEEN INVESTMENT STRATEGY AND PENSION FUND EFFICIENCY

Markese (2000) investigated the relationship between the investment strategy and financial performance of pension funds and found that pension funds that invest more in equity stocks perform better than those that invest more in
bonds and other fixed securities. The OECD (2009b:4) concurs that pension funds with clear statement of investment principles perform better than those without.

Stanko (2002) evaluated the financial performance of pension funds in Poland by comparing their results with other investment opportunities over the period 1999 – 2002. They found that pension fund returns were maximised through active management of the investment portfolio. Charles, McGuigan and Kretlow (2006:8) report that investors can maximise returns if they put their funds in a single high yielding investment they would however, be exposed to greater risk of loss in case of poor market performance. According to Asebedo and Grable (2004:18), investment diversification leads to average performance but minimises losses during periods of poor stock market performance. Through proper investment strategy risk is avoided and timing is enhanced (Hebb 2006).

Furthermore, restricting investment opportunities tends to depress financial performance making the pension funds less profitable (Olivia and Mitchell 2008:4). According to Elton, Gruber and Blake (2006), inadequate investment strategy leads to less wealth. Poor investment strategies led to a 53% less benefits to pensioners in the US compared to a market portfolio over a 20-year period (Elton et al. 2006).

Vittas et al. (2008: 6) attribute the poor past record of investment performance in public pension funds in Sweden, Jordan and Mauritius to poor investment strategies that resulted in excessive investment in government bonds and failed to take advantage of the higher returns that the equity market offered. Poor investment strategies led to achievement of returns that were less than the inflationary rates in Ghana, Kenya, Nigeria, Tanzania, Uganda and Zambia’s provident funds. In contrast the use of proper investment strategy resulted in better performance of the CALPERS (pension fund covering local government workers in California) and TSP (pension fund covering federal government workers in the U.S) (Vittas et al. 2008).
Supporting the above literature review, Hebb (2006:22), Baldursdottir (2000:18) and Iwaisako, Mitchell and Piggott (2005:3) all agree that sound investment decisions maximise pension fund efficiency. It is therefore hypothesised that:

**H3a:** Investment strategy exerts a positive influence on pension fund efficiency (as measured by operational efficiency).

**H3b:** Investment strategy exerts a positive influence on pension fund efficiency (as measured by financial efficiency).

### 7.6 RELATIONSHIP BETWEEN PENSION FUND ETHICS AND PENSION FUND EFFICIENCY

Failure to abide by the acceptable ethical standards in pension funds result in sub optimal decision-making that compromises their financial results and trust bestowed to them (Clark and Urwin 2008:2; OECD 2007c:10). Proper ethical behaviour in pension fund management minimises compliance costs and ensures that the risks taken by the trustees are acceptable and within the appropriate thresholds as prescribed in the investment policy thus improving efficiency (Gifford 2004:5).

Inadequacies in the application of ethical behaviour results in poor pension fund returns (Raiffa 2002:32; Antolin and Stewart 2009:14). Ethical behaviour in the pension fund industry however contributes to maximisation of the beneficiary’s welfare, reduced chances of litigation, improved governance and better investment performance, which increases efficiency (OECD 2009b:6).

Appropriate ethical behaviour enhances objective application of skills and expertise in ways that build a collective sense of commitment and responsibility and provides a way of dealing with rival interests in pension funds, which consequently increase efficiency (Hirschhorn 2004:449; Save-Soderbergh 2009:3; O’Neill 2007:7). Moreover, ethical practices influence the
pension funds investment strategy since pension funds conduct negative screening to divest their shares in companies viewed to be unethical (Chapman 2006; Walsh et al. 2007:40; FOE 2009:3).

Against the above mentioned background, it is hypothesised that:

\[ H4a: \quad \text{Fund ethics exert a positive influence on pension fund efficiency (as measured by operational efficiency)} \]

\[ H4b: \quad \text{Fund ethics exert a positive influence on pension fund efficiency (as measured by financial efficiency).} \]

### 7.7 RELATIONSHIP BETWEEN PENSION FUND RISK AND PENSION FUND EFFICIENCY

Pension fund risk influences fund returns. The risk returns trade-off, in other words finding the right to balance between risk and returns, should therefore be properly managed (Mitchell et al. 2009:11; IOPS 2007c:7; and Maurer et al. 2009:9). Risk based supervision results in better financial results for pension funds as it focuses on a proactive approach to losses (Thompson 2008:2; IOPS 2007c:5; Brunner et al. 2008:11; IOPS 2008b:8 and Odundo 2008).

A negative relationship exists between the default risk and financial performance of pension funds (Stewart 2007:13) since pension funds rely on contributions from members and sponsors for their investments. According to Brady (2009:32), the assumptions on pension fund risk made in the estimation of future benefits and rates of return on investments determines the investment strategies to use and the consequent efficiency outcomes are directly linked to these risky assumptions.
Against this background it is hypothesised that:

**H5a:** Risk management exerts a positive influence on pension fund efficiency (as measured by operational efficiency).

**H5b:** Risk management exerts a positive influence on pension fund efficiency (as measured by financial efficiency).

### 7.8 RELATIONSHIP BETWEEN PENSION FUND DESIGN AND PENSION FUND EFFICIENCY

Secondary literature sources suggest that defined contribution pension funds outperform the defined benefit funds as a result of the following factors.

- They are more cost effective than their defined benefit counterparts since the benefits payable are not tied to the contributions made (Brady 2009:14; Crane, Heller and Yakoboski 2008:7; Faktum 2009:2).
- They involve members more in decision-making (Hess and Impavido 2003:9; Choi, Laibson and Madrin 2006:16).
- The investment risk is borne by the members and not the sponsor hence members take all possible measures to avoid loss (Brady 2009:12).
- There is lesser sponsor influence since the sponsor does not nominate majority of the members (Yang 2005:34).
- There is more transparency in decision-making and communication to members (Nyce 2005:10; Clark and Mitchell 2005:106).
- Default risk from the members is less (Yang 2005:21).

It is therefore hypothesised that:

**H6a:** Pension fund design exerts an influence on pension fund efficiency (as measured by operational efficiency).

**H6b:** Pension fund design exerts an influence on pension fund efficiency (as measured by financial efficiency).
7.9 RELATIONSHIP BETWEEN AGE OF MEMBERS AND PENSION FUND EFFICIENCY

The age of employees determines the pension promises that their employers make to them, since younger employees have a longer time horizon to invest compared to the older employees (Mulvey and Nyce 2005:121; Friedberg and Webb 2004:296; Lusardi and Mitchell 2007d:209). The investment time horizon in turn influences the type of pension fund design on which to anchor the pension fund.

The increasing life expectancies in various countries have forced governments to rethink about the efficiency of their pension systems and in some cases restructured the retirement age to be able to accommodate the payment of the pension obligations (Mitchell, Piggot, Sherris and Yow 2006:2; World Bank 1994:6; Whelan 2005:11). The studies point to a negative relationship between the age of members and pension fund efficiency.

The age of the members influences the investment strategy to adopt (Charles et al. 2006:12). Whereas pension funds with younger members will be robust in their investments, those with older members will tend to be conservative thus limiting their returns on investments (Charles et al. 2006).

It is therefore hypothesised that:

\[H7a:\] The age of members exerts a negative influence on pension fund efficiency (as measured by operational efficiency).

\[H7b:\] The age of members exerts a negative influence on pension fund efficiency (as measured by financial efficiency).
7.10 RELATIONSHIP BETWEEN FUND SIZE AND PENSION FUND EFFICIENCY

Empirical findings with regard to the relationship between size and the financial efficiency of pension funds are inconclusive. A negative relationship between financial performance and fund size is reported in Cicotello and Grant (1996), Droms and Walker (2001) and Grinblatt and Titmat (1994). On the other hand, positive relationship between the same variables is reported in Gallagher and Martin (2005), Cheong (2007), Mahon and Donohoe (2006:15) and Chon, Hong, Huang and Kubik (2004:1284). It was also reported that larger pension funds can achieve numerous benefits brought about by economies of scale in administration (Mahon and Donohoe 2006:15; Caswell 1976:6; Bikker and Dreu 2009:12; Ardon 2006:10). Furthermore, Brown and Davis (2009:10-11) found that collaboration of pension funds in Australia led to better performance since the larger funds were able to exercise a significant influence on the industry.

As more studies indicate a positive relationship between the two variables, it is hypothesised that:

H8a: Fund size (as measured by the number of members) exerts a positive influence on pension fund efficiency (as measured by operational efficiency).

H8b: Fund size (as measured by the number of members) exerts a positive influence on pension fund efficiency (as measured by financial efficiency).

7.11 RELATIONSHIP BETWEEN OPERATIONAL EFFICIENCY AND FINANCIAL EFFICIENCY

Operational efficiency aims at combining people, processes and technology to add value to pension fund activities and consequently reduces costs (Harris,
2006:23). Financial efficiency on the other hand is conceptualised as the financial efficiency brought about by the balance between costs and benefits of operation (Cinca et al. 2002; Barros and Garcia 2006; Serrano and Mar Molinero 2001). It is contemplated that to achieve financial efficiency, organisations must be operationally efficient. This assertion leads to the following hypothesis:

*H9:* *Operational efficiency exerts a positive influence on financial efficiency.*

The hypothesised model is depicted in Figure 7.1 below.
FIGURE 7.1: HYPOTHESESSED MODEL

Operational efficiency

Financial efficiency

Fund governance
- H1a+
- H1b+

Fund regulations
- H2a+
- H2b+

Investment strategy
- H3a+
- H3b+

Fund ethics
- H4a+
- H4b+

Risk management
- H5a+
- H5b+

Fund design
- H6a±
- H6b±

Membership age
- H7a-
- H7b-

Fund size
- H8a+
- H8b+
7.12 SUMMARY

In chapter seven a theoretical model to improve operational and financial efficiency of pension funds has been developed. It is hypothesised that the following variables influence the operational and financial efficiency of pension funds: fund governance, fund regulations, investment strategy, fund ethics, pension fund risk, pension fund design, age of members and fund size. It is also hypothesised that operational efficiency results in financial efficiency.

In chapter eight the methodology to statistically investigate the hypothesised model is discussed.
CHAPTER 8

RESEARCH METHODOLOGY AND PRELIMINARY DATA ANALYSES

8.1 INTRODUCTION

In this chapter, the research methodology followed in the study is discussed. This includes the research paradigm, sampling design, measuring instruments and data analyses.

8.2 RESEARCH PARADIGM

Saunders, Lewis and Thornhill (2009:595) define research methodology as the theory of how research should be undertaken, which includes the theoretical and philosophical assumptions upon which research is based and the implications of these for the method or methods adopted. The research methodology provides the systematic plan of inquiry from the researcher’s philosophical assumptions, through the research design (data collection and analysis techniques) to result interpretation (Saunders et al. 2009).

According to Schostak (2008:4), scientific research is based on some basic philosophical assumptions, namely ontology, epistemology and axiology. Ontology refers to a model of a particular field of knowledge or the concepts and their attributes, as well as the relationships between the concepts, while epistemology refers to the branch of philosophy that studies the nature of knowledge, its presuppositions and foundations, and its extent and validity (Schostak 2008). Axiology on the other hand is the study of quality or value (Schostak 2008).

Saunders et al. (2009:112) document that epistemology concerns what constitutes acceptable knowledge in a field of study. Epistemology has to do with assumptions about the criterion by which applicable knowledge about an event is constructed and evaluated (Saunders et al. 2009).
In scientific research, induction and deduction are two prime approaches to discovery (Saunders et al. 2009:590-593; Burney and Mahmood 2006:64; Burney 2008:6; Easterby-Smith, Thorpe, Jackson and Lowe 2008:28). While the inductive approach entails development of a theory based on observation of empirical data, the deductive approach involves testing of a theoretical proposition by the employment of a research strategy specifically designed for the purpose of its testing (Saunders et al. 2009).

Burney and Mahmood (2006) and Fielding and Schreier (2001) suggest that deductive research proves findings and conclusions based on well-grounded theories and recognised facts. Theory testing involves testing relationships between variables but does not create knowledge and can give certainty pertaining to the application of the theory (Punsch 2005:36; Burke 2007:479). Inductive arguments on the other hand show that their conclusions are likely or based on local observation, moving from specific to general, where the data is used to build theories (Heit 2009:2). The deductive and inductive approaches are thus not opposed but complementary to one another (Punsch 2005).

Social science research approaches are further classified as descriptive, exploratory or explanatory. Descriptive research aims at producing accurate representation of persons, events and situations and the exploratory research aims at seeking new insights into phenomena, ask questions, and assess the phenomena in a new light (Torochim 2006:2; Winter 2000). On the other hand explanatory research focuses on studying a situation or a problem in order to explain the relationships between variables (Saunders et al. 2009:590-592; Cavanagh and Reynolds 2009:36). Therefore, descriptive research is the first research about an issue, exploratory research is an attempt to investigate a social phenomenon without a clear anticipation or expectation and explanatory research involves seeking to identify the causes and effects of a social phenomenon and to predict how one variable will change in response to variation in another variable.
The above-mentioned philosophical assumptions lead to a distinction between qualitative and quantitative methodologies. According to Saunders et al. (2009:482); Sekaran (2003:157) and Corazzon (2009:3) quantitative methodology deals with numbers, has a formal and strict approach, is used in explanatory studies and focuses on theory verification and testing while qualitative research involves the use of interviews and documents, is more flexible and works well in an exploratory design and is focused on theory building.

Different authors (Sekaran 2003; Cooper and Schindler 2008; Saunders et al. 2009) conclude that the selection of a research methodology in social science research is dependent on the researcher determining the approach they intend to use in answering their research questions. Selecting the right research method is thus important in increasing reliability, validity and generalisation of the findings and the philosophical position of the research.

In the present study, the quantitative research paradigm is followed for the following reasons. Firstly, deductive reasoning is used to formulate hypotheses. Secondly, these hypotheses are operationalised and tested. Thirdly, the outcomes of the inquiry are examined and the theory modified in light of the findings. The last step ensures that the empirical results confirm the theory that started with premises and leads to empirical generalisation. These steps manifest a quantitative research approach according to Sekaran (2003), Cooper and Schindler (2006) and Saunders et al. (2009).

8.3 THE SAMPLE

The population for the study consisted of 1679 pension funds in the RBA register by 31 December 2008. The study sought to quantify financial and operational efficiency of the funds for the period 2001 to 2008. Pension funds that were licensed before 2001 were omitted due to lack of coherent data. This condition narrowed the population of interest down to 749 pension funds. A survey of all the 749 pension funds was conducted, but only 362 usable
questionnaires were returned, which resulted in a response rate of 48.3%. The questionnaires and covering letter (see Annexure 1) were addressed to the trustees of the pension funds. It was assumed that trustees are the board of management of a pension fund and are most informed about pension fund management issues.

The sample used to draw inferences comprised 316 trustees (42.2%), 10 chairpersons of the boards of trustees (1.3%), 23 members who were former trustees (3.1%) and 13 trust secretaries (1.7%). The sample size was considered adequate since for the purposes of applying structural equation modelling, the sample size needs to be at least 100 per respondent per model (Hair, Anderson, Tatham and Black 1995: 637).

Table 8.1 depicts the demographical composition of the respondents while table 8.2 depicts the characteristics of the responding pension funds.

### TABLE 8.1 DEMOGRAPHIC COMPOSITION OF THE SAMPLE

<table>
<thead>
<tr>
<th>Gender</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>296</td>
<td>81.8</td>
</tr>
<tr>
<td>Female</td>
<td>66</td>
<td>18.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>362</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 – 29</td>
<td>17</td>
<td>4.7</td>
</tr>
<tr>
<td>30 – 39</td>
<td>261</td>
<td>72.1</td>
</tr>
<tr>
<td>40 – 49</td>
<td>54</td>
<td>14.9</td>
</tr>
<tr>
<td>50 – 59</td>
<td>26</td>
<td>7.2</td>
</tr>
<tr>
<td>60 &gt;</td>
<td>4</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>362</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Position in pension fund</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairperson</td>
<td>10</td>
<td>2.8</td>
</tr>
<tr>
<td>Member</td>
<td>23</td>
<td>6.4</td>
</tr>
<tr>
<td>Trust secretary</td>
<td>13</td>
<td>3.5</td>
</tr>
<tr>
<td>Trustee</td>
<td>316</td>
<td>87.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>362</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Position in employment</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top management</td>
<td>13</td>
<td>3.5</td>
</tr>
<tr>
<td>Middle management</td>
<td>349</td>
<td>96.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>362</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 8.1 reports the categorised demographic questions. Most of the respondents were male (81.8%) while 18.2% were females managing the pension funds. The majority of the respondents (72.1%) were in the 30-39 years age bracket, 14.9% were in the 40-49 years age bracket, 8.3% were aged fifty years or more while only 4.7% of the respondents were in the 20-29 years age bracket. Most of the respondents were middle level managers (96.5%) and top management accounted for 3.5%. The pension fund trustees’ profile can therefore be summarised as middle level managers who fall within the age ranges of 30-49.

Table 8.2 reveals that 84.5% of the respondents’ pension funds were operated on defined contribution principles while 15.5% operated on defined benefit principles. Twelve pension funds (3.3%) had converted their design from defined benefit to defined contribution within the period of study. Twenty percent of the pension funds had membership range between 201-300, and 22.7% had less than 100 members, 26.2% had between 101 and 200 members, and 11.3% had between 401 and 500 members while only 3.9% of the responding pension funds had more than 500 members.

Moreover, 80.9% of the pension funds had members whose average age ranged from 31 to 40 years, 9.7% had members with an average age of 21-30 while only 9.3% of the funds had members whose age ranged from 41 to 60 years.

Pension funds in Kenya can thus be described as pension funds operated on defined contribution design with membership ranging from 50 to 500 and members aged between 21 and 50 years.
TABLE 8.2 CHARACTERISTICS OF THE PENSION FUNDS

<table>
<thead>
<tr>
<th>Design</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defined Contribution</td>
<td>306</td>
<td>84.5</td>
</tr>
<tr>
<td>Defined Benefit</td>
<td>56</td>
<td>15.5</td>
</tr>
<tr>
<td>Total</td>
<td>362</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Converted design</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Converted</td>
<td>12</td>
<td>3.3</td>
</tr>
<tr>
<td>Not converted</td>
<td>350</td>
<td>96.7</td>
</tr>
<tr>
<td>Total</td>
<td>362</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of members</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 100</td>
<td>82</td>
<td>22.7</td>
</tr>
<tr>
<td>101 – 200</td>
<td>95</td>
<td>26.2</td>
</tr>
<tr>
<td>201 – 300</td>
<td>72</td>
<td>19.9</td>
</tr>
<tr>
<td>301 – 400</td>
<td>58</td>
<td>16.0</td>
</tr>
<tr>
<td>401 – 500</td>
<td>41</td>
<td>11.3</td>
</tr>
<tr>
<td>500 &gt;</td>
<td>14</td>
<td>3.9</td>
</tr>
<tr>
<td>Total</td>
<td>362</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age of the members</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 – 30</td>
<td>35</td>
<td>9.7</td>
</tr>
<tr>
<td>31 – 40</td>
<td>293</td>
<td>80.9</td>
</tr>
<tr>
<td>41 – 50</td>
<td>19</td>
<td>5.2</td>
</tr>
<tr>
<td>51 – 60</td>
<td>15</td>
<td>4.1</td>
</tr>
<tr>
<td>Total</td>
<td>362</td>
<td>100</td>
</tr>
</tbody>
</table>

8.4 THE MEASURING INSTRUMENTS

Instruments were developed to measure the variables investigated in the study (see Annexure 2). These variables include financial efficiency, operational efficiency, fund ethics, fund governance, fund risk, fund regulations and investment strategy. All the instruments were self-constructed, as no existing instruments could be found to measure the variables included in this study.

8.4.1 Financial efficiency

The Data Envelopment Analysis (DEA) technique was to measure financial efficiency. The concept of data envelopment was first developed by Charnes, Cooper and Rhodes (1978) to calculate relative efficiency of objects (decision making units) using a variety of inputs and outputs. Charnes et al. (1978:430)
conceptualised DEA as the mathematical identification of the most efficient decision making unit from the observed inputs and outputs. Efficiency in DEA is thus defined as the ratio of the weighted sum of outputs to the weighted sum of inputs (Sofianopoulou 2006:227).

According to Weber (1996:29), a decision making unit is considered efficient if there is no other decision making unit, or combination of other decision making units that can produce at least the same amounts of all outputs, with less of some resource input and no more of any other resource. DEA is therefore a technique that can be used to benchmark the performance of decision-making units. In the present study, pension funds are such decision-making units.

Chen (2008:1257) suggests that the main strengths of using DEA are its ability to accommodate multiple inputs and outputs and allowing decision-making units to specify their own weights to maximise their efficiency values. In the present study, the pension inputs were administrative and investment costs, pension fund value at the beginning of the year, and the average contributions per employee to the pension fund. The outputs were pension fund value at the end of the year and the average benefits per retiree.

The results of the DEA models produce the efficiency value of every decision-making unit, with the highest value being 100% (Mostafa 2007:804). The firms with efficiency values of 100% can be classified as efficient and can be role models to those with lesser scores (Mostafa 2007).

**8.4.2 Operational efficiency**

An instrument was constructed based on the efficiency attributes identified in the literature on pension funds. The instrument measured for example the perceived extent to which pension funds were successful in, among others, reducing administrative costs, reducing benefit processing periods, reducing time taken to report to members, improving internal control systems,
maintaining return on investment and complying with RBA regulations. These indicators were anchored to a Likert-type scale ranging from (1) strongly disagree to (5) strongly agree.

8.4.3 Fund ethics

A self-constructed instrument based on the literature on pension funds was used to measure fund ethics. The instrument measured, among others, the extent to which pension funds ensure confidentiality in all pension fund management issues; reject inappropriate requests from sponsors; honestly share information with trustees and members; manage conflict with service providers; and properly utilise trustees’ authority. These indicators were also anchored to a five-point scale ranging from (1) strongly disagree to (5) strongly agree.

8.4.4 Fund governance

An instrument was constructed based on the empirical aspects of governance of pension funds as espoused in the literature. The instrument measured, among others, the importance of the following: board of trustees having members in active employment; CEO leadership; continuous finance education to trustees; using competitive bidding in appointing service providers; avoiding conflict of interest in decision making and maintaining an effective performance management system. The five-point anchoring scale to these indicators ranged from (1) not important at all, to (5) a great deal important.

8.4.5 Fund risk

Fund risk was measured with a self-constructed instrument. The instrument captured elements such as, among others, exposure to default risk from the sponsor and employees, the absence of strategies to counter stock market
risk, negative influences from industry changes of employees, exposure to high volatility in order to earn higher return on investments and tolerating risk beyond the guidelines of the RBA. These indicators were anchored to a Likert-type scale ranging from (1) strongly disagree to (5) strongly agree.

8.4.6 Fund regulations

An instrument was constructed to capture the important RBA regulations to which pension funds need to comply. The respondents were asked to indicate the importance of these regulations in the governance and regulatory environment of pension funds in Kenya. These regulations, among others include: compliance cost regulation by the RBA; limiting the number of trustees to 10, regardless of the size of the scheme; the regulation of fees charged by service operators; tax on non-exempt incomes of pension fund members; risk tolerance levels; etcetera. The five-point anchoring scale to these indicators ranged from (1) not important at all to (5) a great deal important.

8.4.7 Investment strategy

This self-constructed scale measured the elements that generally describe the investment strategies employed by pension funds. These strategies, among others, include: investment committees making investment decisions; not restricting investment in any company; covering trustees with liability insurance; increased investment in fixed interest investments (bonds and treasury bills) as opposed to equity investments, conducting independent evaluations of pension fund performance to confirm rates reported by fund administrators; etcetera. These indicators were anchored to the five-point scale: (1) strongly disagree to (5) strongly agree.
8.4.8 Other independent variables

The questionnaire also included instruments to capture variables such as fund design, fund size and membership age. The fund design instrument measured what type of design a pension fund has adopted, namely (1) defined contribution (DC), (2) defined benefit (DB) or (3) a hybrid of DC and DB. Fund size, defined as the number of members belonging to a pension fund, was anchored to a six-point scale ranging (1) from less or equal to 100 to (5) more than 500.

The age of the members of a pension fund can influence the investment strategy of a pension fund (Whelan 2005). The age of members were therefore captured on a six-point scale ranging from (1) younger or equal to 20 years to (6) older than 60 years.

8.5 DATA ANALYSIS

To achieve the objectives of the study, various data analysis techniques were used. Firstly, financial efficiency scores of the pension funds were calculated by using the Data Envelopment Analysis (DEA) technique. Secondly, the instruments, used to measure the latent variables, were assessed for reliability and validity. Thirdly, various data analysis techniques were used to test the hypothesised relationships among the variables in the final sample, such as Structural Equation Modelling (SEM), multiple regression analysis and analysis of variance (ANOVA). Finally, communicative validation of the empirical results was conducted to test the veracity or truthfulness of the knowledge gained in the study. This analysis involved a dialogue (through a focus group) with the respondents after the study.

8.5.1 Data envelopment analysis (DEA)

The DEA technique was discussed in section 8.4.1 above. The Frontier Analyst Version 4.10 (2008) computer software program was used to conduct
the analysis. This analysis entails the using of linear programming principles to calculate efficiency scores that range from 0 (nil) to 100%. This calculation was done for each year starting from 2001 to 2008. The average of the eight years was then calculated for each pension fund, which was regarded as each pension fund’s DEA score.

Table 8.3 summarises the DEA efficiency scores for the 362 pension funds. The table depicts the minimum DEA efficiency score of 60% and the maximum 100%. The table further shows that 15.7% of the pension funds had DEA scores ranging from 60% to 69%, 11.9% had the scores in the 70% – 79% bracket, 31.5% had their scores ranging between 80 to 89% and 34% had their scores within 90 and 99% while the remaining 6.9% had average DEA scores of 100%. The pension funds whose DEA scores were 100% were the best performers whose practices should be copied by those with lesser efficiencies.

**TABLE 8.3: DEA SCORES OF PENSION FUNDS**

<table>
<thead>
<tr>
<th>DEA SCORES %</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 – 69</td>
<td>57</td>
<td>15.7</td>
</tr>
<tr>
<td>70 – 79</td>
<td>43</td>
<td>11.9</td>
</tr>
<tr>
<td>80 – 89</td>
<td>114</td>
<td>31.5</td>
</tr>
<tr>
<td>90 – 99</td>
<td>123</td>
<td>34.0</td>
</tr>
<tr>
<td>100</td>
<td>25</td>
<td>6.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>362</td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Figure 8.1 depicts that the minimum DEA efficiency score was 60% and the maximum was 100% with a mean score of 84.95% and a standard deviation of 11.09%.
Figure 8.1 shows that Kenyan pension funds have a wide disparity in DEA efficiency scores as it ranges from 60% to 100%. This disparity shows that whereas some pension funds are efficient, others are less efficient and so the efficient pension funds can act as role models to the others.

8.5.2 Reliability of the measuring instruments

An instrument is considered reliable if the results of a study can be reproduced under a similar methodology (Joppe 2000:1). Reliability is therefore the extent to which measures yield consistent results (Zikmund 2000:280). To be considered reliable, the measuring instrument must be free of errors and the results or observations must be replicable or repeatable (Joppe, 2000). The consistency or reliability implied in the research instrument
relates to three issues namely (1) the degree to which a measurement, given repeatedly, remains the same (2) stability of a measurement over time and (3) the similarity of measurements within a given time period (Kirk and Miller 1986:41-42).

Reliability of a measuring instrument is established by determining the association between the scores obtained from different administrations of the instrument (Joppe, 2000). An instrument is considered reliable if the degree of association is high. The methods frequently used to test reliability are test-retest, split-half, equivalent-form and the Cronbach alpha (Cant, Gerber-Nel, Nel and Kotze 2003:122-124). The test-retest method estimates reliability as the Pearson product-moment correlation coefficient between two administrations of the same measure (Bland and Altman 1997:318). In the present study, the Cronbach alpha coefficient was used to calculate the internal consistency (reliability) of the measuring scales.

The Cronbach alpha indicates the extent to which a set of test items can be treated as measuring a single latent variable (Malhotra 1999: 283) and is more accurate and careful method of establishing the reliability of a measuring instrument than the Spearman-Brown and Kuder-Richardson reliability measures (Parasuraman 1991:444). The Cronbach alpha can also produce a reliability estimate with a single administration. The Cronbach alpha coefficient is interpreted as the mean of all possible split-half coefficients (Bland and Altman 1997:138).

The Cronbach alpha reliability coefficient ranges from 0 to 1 (George and Mallery 2003:231), hence the closer the alpha coefficient is to 1.0, the greater the internal consistency of the items in the scale. According to George and Mallery (2003:231), a Cronbach alpha coefficient of 0.70 or more is considered ideal. Other studies, however, regard a Cronbach alpha coefficient of 0.50 as acceptable for basic research (Tharenou 1993; Pierce and Dunham 1987). A Cronbach alpha of 0.70 means that 70 percent of the variance in observed scores (the actual scores obtained on the measure) is due to the variance in the true scores (the true amount of the trait possessed by the
respondent). In other words, the score obtained from the measuring instrument is a 70 percent true reflection of the underlying trait measured.

Firstly, a pilot study was conducted to identify errors in the questionnaire. The questionnaire was issued to 24 respondents and the reliability scores for these responses were calculated. Table 8.4 shows the reliability scores for the pilot study. The results show that all the variables produced acceptable reliability scores. Their Cronbach alpha values exceeded the minimum value of 0.50, which is required for basic or exploratory research (Tharenou 1993; Pierce and Dunham 1987). The present study qualifies for basic research as no previous study has been done on the hypothesised model investigated in this study. It was decided to retain all questionnaire items and to improve those that were highlighted by the item-to-item correlations as potentially weak items. The final questionnaire was then used for the data collection and all subsequent analyses were performed on the final data.

After the data collection process, the final raw data was again assessed for reliability. Table 8.4 shows improvements on the Cronbach alphas of the pilot study, for example operational efficiency from 0.56 to 0.63 and fund ethics from 0.54 to 0.88. All variables were therefore retained in subsequent analyses.

**TABLE 8.4: EMPIRICAL RESULTS – INTERNAL RELIABILITY**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cronbach’s alpha in pilot study</th>
<th>Cronbach alphas in final sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund regulations</td>
<td>0.51</td>
<td>0.51</td>
</tr>
<tr>
<td>Fund governance</td>
<td>0.60</td>
<td>0.60</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>0.56</td>
<td>0.63</td>
</tr>
<tr>
<td>Fund risk management</td>
<td>0.55</td>
<td>0.55</td>
</tr>
<tr>
<td>Investment strategy</td>
<td>0.69</td>
<td>0.69</td>
</tr>
<tr>
<td>Fund ethics</td>
<td>0.54</td>
<td>0.88</td>
</tr>
</tbody>
</table>
8.5.3 Validity of measuring instruments

Validity of the measuring instrument determines whether the research truly measures that which it was intended to measure or how truthful the research results are (Joppe 2000:1; Jones 1993:22; Smit 1991:52). Validity thus involves ascertaining whether the means of measurement are accurate and whether they are actually capturing the variables they were supposed to measure (Golafshani 2003:599). For example, a kilometre is an invalid measure of weight. According to Saunders et al. (2009), validity implies the extent to which the proposed interpretation of a measurement is supported empirically and by other evidence. In other words, validity in a measuring instrument implies absence of measurement error.

According to Golafshani (2003:599), the construct is the initial concept, notion, question or hypothesis that determines which data is to be gathered and how it is to be gathered. Testing construct validity therefore implies deriving inferences from the scale based on the theory underlying the preparation of that scale (Golafshani 2003).

Roux (2006:15) identifies the types of validity measures as content, face, criteria related and construct related (which includes convergent and discriminant validity). While all of the above-mentioned types of validity are important, construct validity is considered the most appropriate type of validity to establish and use in social research (Diamantopoulos and Schlegelmilch 2000:34).

Convergent validity implies the extent to which an operation is similar to (converges on) other operations that it theoretically should also be similar to Torochim (2006), hence high correlations between the variables would be evidence of a convergent validity. Convergent validity shows that the assessment is related to what it should theoretically be related to. Discriminant validity on the other hand describes the degree to which the operationalisation is not similar to (diverges from) other operationalisations
that it theoretically should not be similar to (Torochim 2006). According to Campbell and Fiske (1959), who introduced the concept of discriminant validity, a successful evaluation of discriminant validity shows that a test of a concept is not highly correlated with other tests designed to measure theoretically different concepts. Although there is no standard value for discriminant validity, a result less than 0.85 asserts that discriminant validity likely exists between the two scales (Campbell and Fiske 1959). A result greater than .85, however, asserts that the two constructs overlap greatly and they are likely measuring the same thing (Campbell and Fiske 1959).

Discriminant validity is calculated by the use of factor analysis. A factor analysis facilitates the identification of measuring items that have a high correlation among themselves, referred to as factors. The items which comprise the factors help determine the structure of the construct being measured.

In the present study, sufficient proof of content and criterion-related validity was established on the basis of the literature review. In the light of the importance of construct validity, as explained above, it was important to assess the discriminant validity of the measuring instruments. For this purpose three sets of exploratory factor analyses were conducted, using the STATISTICA Version 9.0 (2009) statistical software package. Principal Component Analysis was specified as the method of factor extraction and Varimax rotation of the original factor matrix was used in all instances.

The extraction of six factors, namely operational efficiency, fund ethics, fund regulations, fund governance, fund risk and investment strategy were specified. It was expected that each of the six variables modelled were separate and distinct constructs. The resultant empirical evidence did not, however, support this contention. After considering various options ranging from four to seven factor solutions, it had to be concluded that the instrument used to measure the above-mentioned factors did not demonstrate sufficient evidence of discriminant validity. Four, instead of six, distinctly separate
variables could be identified. The most interpretable factor structures for these variables are reported in Table 8.5.

Table 8.5 shows that four items, which were originally regarded as measures of operational efficiency (EFFC), load on factor 1. Seven ethics (ETHC1, 2, 3, 5, 6, 7 and 8), one fund governance item (GOVN14), one fund regulation item (REGU10) and two fund risk items (RISK 1 and 11) also load on factor 1. It appears that all these items are related to operational efficiency, for example “remunerating trustees properly” (GOVN14), “not exposing the fund to default risk from sponsors (RISK1) and “not limiting investments in real estate to 5% of fund value” (REGU10). It also appears that the respondents did not distinguish between operational efficiency and fund ethics. They regard the two as being the same. A subsequent EFA on operational efficiency and fund ethics items confirmed that the two were not separate factors. All the above-mentioned variables were therefore regarded as measures of operational efficiency.

Table 8.5 further shows that two of the earlier envisaged governance items (GOVN2 and GOVN12), two regulation items (REGU5 and REGU8), one ethic item (ETHC4) and one strategy item (STRAT8) load on factor 2. The items are: honesty when sharing information with trustees and members (ETHC4); CEO leadership of the pension fund (GOVN2); maintaining an effective performance measurement system (GOVN12); compliance with the pension law (REGU5); effective financial reporting practices (REGU8); and giving wide discretion to external investment managers (STRAT8). It appears that all these items are related to fund leadership and are therefore regarded as measures of that variable.

The items that loaded on factor 3 include EFFC2 (decrease in benefits processing period), GOVN3 (continuous education to trustees), GOVN6 (maintaining an effective internal control system to document and monitor the pension fund’s activities), GOVN7 (open communication to members),
GOVN10 (clearly defining the roles of the trustees), REGU3 (regulation of fees charged by service providers), RISK4 (bankruptcy of the fund if the sponsor ceases to exist) and STRAT10 (basing investment strategies on market findings). This variable was labelled fund governance (FGOVN).

**TABLE 8.5: ROTATED FACTOR LOADINGS – EMPIRICAL RESULTS**

<table>
<thead>
<tr>
<th></th>
<th>FACTOR 1*</th>
<th>FACTOR 2*</th>
<th>FACTOR 3*</th>
<th>FACTOR 4*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operational efficiency</td>
<td>Fund leadership</td>
<td>Fund governance</td>
<td>Fund regulations</td>
</tr>
<tr>
<td>EFFC1</td>
<td>0.846</td>
<td>0.007</td>
<td>0.079</td>
<td>0.019</td>
</tr>
<tr>
<td>EFFC5</td>
<td>0.895</td>
<td>0.049</td>
<td>0.037</td>
<td>-0.029</td>
</tr>
<tr>
<td>EFFC11</td>
<td>0.845</td>
<td>-0.013</td>
<td>-0.052</td>
<td>0.087</td>
</tr>
<tr>
<td>EFFC13</td>
<td>0.871</td>
<td>0.082</td>
<td>0.013</td>
<td>0.010</td>
</tr>
<tr>
<td>ETHC1</td>
<td>0.460</td>
<td>0.027</td>
<td>-0.235</td>
<td>-0.030</td>
</tr>
<tr>
<td>ETHC2</td>
<td>0.832</td>
<td>-0.026</td>
<td>0.018</td>
<td>-0.088</td>
</tr>
<tr>
<td>ETHC3</td>
<td>0.918</td>
<td>-0.031</td>
<td>-0.030</td>
<td>0.045</td>
</tr>
<tr>
<td>ETHC5</td>
<td>0.921</td>
<td>-0.019</td>
<td>0.025</td>
<td>-0.045</td>
</tr>
<tr>
<td>ETHC6</td>
<td>0.858</td>
<td>0.0132</td>
<td>0.005</td>
<td>0.004</td>
</tr>
<tr>
<td>ETHC7</td>
<td>0.833</td>
<td>0.004</td>
<td>0.045</td>
<td>-0.058</td>
</tr>
<tr>
<td>ETHC8</td>
<td>0.689</td>
<td>0.153</td>
<td>0.054</td>
<td>0.124</td>
</tr>
<tr>
<td>GOVN14</td>
<td>0.628</td>
<td>0.097</td>
<td>0.027</td>
<td>-0.029</td>
</tr>
<tr>
<td>REGU10</td>
<td>0.469</td>
<td>-0.115</td>
<td>0.091</td>
<td>0.256</td>
</tr>
<tr>
<td>RISK1</td>
<td>0.565</td>
<td>0.111</td>
<td>-0.136</td>
<td>0.073</td>
</tr>
<tr>
<td>RISK11</td>
<td>0.587</td>
<td>-0.059</td>
<td>0.026</td>
<td>-0.037</td>
</tr>
<tr>
<td>ETHC4</td>
<td>0.019</td>
<td>0.454</td>
<td>0.157</td>
<td>0.186</td>
</tr>
<tr>
<td>GOVN2</td>
<td>-0.024</td>
<td>0.571</td>
<td>0.098</td>
<td>-0.159</td>
</tr>
<tr>
<td>GOVN12</td>
<td>0.054</td>
<td>0.650</td>
<td>-0.015</td>
<td>0.081</td>
</tr>
<tr>
<td>REGU5</td>
<td>0.182</td>
<td>0.514</td>
<td>0.044</td>
<td>0.229</td>
</tr>
<tr>
<td>REGU8</td>
<td>-0.038</td>
<td>0.484</td>
<td>-0.192</td>
<td>0.195</td>
</tr>
<tr>
<td>STRAT8</td>
<td>0.101</td>
<td>0.431</td>
<td>0.137</td>
<td>0.012</td>
</tr>
<tr>
<td>EFFC2</td>
<td>-0.073</td>
<td>0.212</td>
<td>0.429</td>
<td>0.188</td>
</tr>
<tr>
<td>GOVN3</td>
<td>0.048</td>
<td>-0.036</td>
<td>0.546</td>
<td>0.170</td>
</tr>
<tr>
<td>GOVN6</td>
<td>0.093</td>
<td>0.125</td>
<td>0.437</td>
<td>-0.146</td>
</tr>
<tr>
<td>GOVN7</td>
<td>-0.072</td>
<td>-0.030</td>
<td>0.482</td>
<td>-0.037</td>
</tr>
<tr>
<td>GOVN10</td>
<td>-0.060</td>
<td>-0.128</td>
<td>0.411</td>
<td>0.116</td>
</tr>
<tr>
<td>REGU3</td>
<td>0.092</td>
<td>-0.063</td>
<td>0.508</td>
<td>0.261</td>
</tr>
<tr>
<td>RISK4</td>
<td>-0.059</td>
<td>0.295</td>
<td>0.579</td>
<td>0.130</td>
</tr>
<tr>
<td>STRAT10</td>
<td>0.051</td>
<td>-0.079</td>
<td>0.408</td>
<td>-0.096</td>
</tr>
<tr>
<td>GOVN9</td>
<td>-0.074</td>
<td>0.274</td>
<td>0.106</td>
<td>0.509</td>
</tr>
<tr>
<td>REGU1</td>
<td>0.115</td>
<td>0.387</td>
<td>0.192</td>
<td>0.539</td>
</tr>
<tr>
<td>REGU2</td>
<td>-0.027</td>
<td>0.076</td>
<td>0.135</td>
<td>0.635</td>
</tr>
<tr>
<td>REGU6</td>
<td>-0.017</td>
<td>-0.194</td>
<td>0.151</td>
<td>0.439</td>
</tr>
<tr>
<td>RISK5</td>
<td>0.085</td>
<td>0.054</td>
<td>0.058</td>
<td>0.690</td>
</tr>
<tr>
<td>STRAT7</td>
<td>0.053</td>
<td>-0.071</td>
<td>-0.126</td>
<td>0.603</td>
</tr>
<tr>
<td>Eigen values</td>
<td>8.901</td>
<td>3.325</td>
<td>1.785</td>
<td>1.619</td>
</tr>
</tbody>
</table>

Note: * = Loadings greater than 0.40 were considered significant
Factor 4 had six items that loaded onto it. These items were GOVN9 (monitoring performance of the service providers), REGU1 (regulation of compliance costs), REGU2 (limiting the size of the board of trustees), REGU6 (regulatory meetings held by the board of trustees), RISK5 (separation of pension fund management from the sponsor’s business) and STRAT7 (maintaining an effective investment policy). This variable was labelled fund regulations (FREGU).

Based on the discussion of Table 8.5, the items summarised in Table 8.6 are regarded as measures of the latent variables and was retained in the hypothesised model to increase the operational and financial efficiency of pension funds. Only these items were used in all subsequent statistical procedures.

**TABLE 8.6: THE FINAL EMPIRICAL FACTOR STRUCTURE**

<table>
<thead>
<tr>
<th>LATENT VARIABLE</th>
<th>MEASUREMENT ITEMS</th>
<th>CRONBACH ALPHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational efficiency</td>
<td>EFFC1, 5, 11, 13 ETHC1, 2, 3, 5, 6, 7, 8 GOVN14 REGU10 RISK1, 11</td>
<td>0.94</td>
</tr>
<tr>
<td>Fund leadership</td>
<td>ETHC4 GOVN2, 12 REGU5, 8 STRAT8</td>
<td>0.56</td>
</tr>
<tr>
<td>Fund governance</td>
<td>EFFC2 GOVN3, 6, 7, 10 REGU3 RISK4 STRAT10</td>
<td>0.52</td>
</tr>
<tr>
<td>Fund regulations</td>
<td>GOVN9 REGU1, 2, 6 RISK5 STRAT7</td>
<td>0.61</td>
</tr>
</tbody>
</table>

The Cronbach alpha reliability coefficients of constructs as they emerged from the factor analyses were then re-calculated to confirm their internal consistency. Based on the factor analysis results and Cronbach alphas, certain latent variables were reconstructed and another removed from the
hypothesised model. Due to inadequate discriminant validity the fund ethics, fund risk and investment strategy variables were removed from the final theoretical model while the governance variable was re-defined as was the leadership variable (see Annexure 3). Table 8.6 lists the final Cronbach alphas of the latent variables that were included in the final hypothesised models. All the Cronbach reliability coefficients were above the 0.500 cut-off point needed for basic research (Tharenou 1993; Pierce and Dunham 1987). All the final scales mentioned in Table 8.6 are therefore regarded as reliable for inclusion in the final hypothesised model.

8.5.4 Revising the hypothesised models

The hypothesised model needed to be revised after the omission and reconstruction of the various variables in the model. Only the latent variables shown in Table 8.6 and their corresponding measuring items were included in the revised models to improve the operational and financial efficiency of pension funds.

Due to the emergence of the new variable, fund leadership, from the factor analysis, additional hypotheses needed to be formulated. These hypotheses were as follows:

\[ H10a: \textit{Fund leadership exerts a positive influence on the operational efficiency of pension funds.} \]

\[ H10b: \textit{Fund leadership exerts a positive influence on the financial efficiency of pension funds.} \]

The revised models to improve the operational and financial efficiency of pension funds are graphically depicted in Figures 8.2a, to 8.2b and 8.2c.
FIGURE 8.2a: REVISED MODEL TO IMPROVE THE OPERATIONAL EFFICIENCY OF PENSION FUNDS – CONTINUOUS VARIABLES

FIGURE 8.2b: REVISED MODEL TO IMPROVE THE OPERATIONAL EFFICIENCY OF PENSION FUNDS – CATEGORICAL VARIABLES
All subsequent analyses are based on the above-mentioned revised hypotheses. Because all the variables included in the revised model depicted in Figure 8.2a are measured on continuous scales, structural equation modeling (SEM) and multiple regression analysis are to be used to test the model statistically. The revised model depicted in Figure 8.2b includes three categorical independent variables and will be tested by the calculation of correlations and analysis of variance (ANOVAs). The revised model depicted in Figure 8.2c measures the relationships between independent variables on a categorical dependent variable (financial efficiency). These relationships are to be tested by the calculation of correlations and analysis of variance (ANOVAs).
8.6 SUMMARY

This chapter reviewed the research methodology adopted for the study and reported on the preliminary results of the study. This included the research paradigm, demographic composition of the sample, reliability and validity of the measuring instruments and the revised hypothesised models.

The results identified four clear latent variables, namely operational efficiency, fund leadership, fund governance and fund regulations. The instruments that measure these variables were found to be reliable and valid. In the next chapter, the empirical results on the hypothesised relationships among these variables are reported.
CHAPTER 9

EMPIRICAL RESULTS

9.1 INTRODUCTION

In this chapter the empirical results on the hypothesised relationships among the variables are reported. Various relationships were statistically tested through structural equation modelling, multiple regression and analysis of variance (ANOVA). These results are interpreted in terms of the research objectives of the present study.

9.2 STRUCTURAL EQUATION MODELLING

Structural equation modelling (SEM) represents a family of powerful and flexible statistical techniques for examining complex research questions and is quite useful in conducting “second generation research” that involves sophisticated research questions that build on earlier findings in a field (Hoyle 1994:428). SEM entails a set of analytic approaches that simultaneously estimate model parameters by analysing a sample covariance matrix and has the ability to model constructs as latent (unobserved) variables using the indicators (observed) variables (Kline 2005). Common approaches such as multiple regression analysis do not control for measurement error and may therefore yield biased results (Kline 2005). SEM also provides a way to test the specified set of relationships among observed and latent variables as a whole and allows theory testing even when experiments are not possible (Cooper and Schindler 2006: 584; Savalei and Bentler 2006: 330). Furthermore, unlike other multivariate techniques, which are limited to representing only a single relationship between the dependent and independent variables, SEM can measure multiple and interrelated dependence relationships simultaneously and provide for the controlling of extraneous and confounding variables (Cooper and Schindler 2006).
9.2.1 Assessing the normal distribution of the data

Before structural equation modelling can be conducted, the normal distribution of the data must be assessed. Tests for (a) univariate and (b) multivariate normality were conducted to assess the normal distribution of the data of the present study. These tests revealed that data in both the univariate and multivariate analyses are skewed and not peaked, which means that the data did not demonstrate sufficient evidence of normality. It was therefore concluded that normal Maximum Likelihood technique could not be used and that the Robust Maximum Likelihood technique had to be used in all subsequent CFA and SEM analyses (Jöreskog and Sörbom 2004 as cited in Scientific Software International, 2006).

9.2.2 Confirmatory factor analysis (CFA)

A Confirmatory Factor Analysis (CFA) was conducted to establish further evidence of construct validity of the empirical factor structure (see Table 8.5) that emerged from the exploratory factor analyses. The LISREL statistical software package (LISREL 8.80, Jöreskog and Sörbom 2004 as cited in Scientific Software International 2006) was used to conduct the analysis in the present study.
The LAMBDA-X matrix (see Table 9.1) indicated that the CFA results represent a permissible solution. This result provides further evidence of construct validity.

The modification indices were inspected and there was no reason to make adjustments to the measurement model. The next phase of the data-analysis, namely structural equation modelling (SEM), could now be conducted on the measurement model.

### 9.2.3 The stages in structural equation modelling (SEM)

According to Hair et al. (2006:734-758), SEM is conducted in the following six phases:

1. Defining individual constructs;
2. Developing the overall measurement model;
3. Designing a study to produce empirical results;
4. Assessing the measurement model validity;

![TABLE 9.1: RESULTS OF CONFIRMATORY FACTOR ANALYSIS](image)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>FACTOR 1</th>
<th>FACTOR 2</th>
<th>FACTOR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fund leadership</td>
<td>Fund governance</td>
<td>Fund regulations</td>
</tr>
<tr>
<td>ETHC4</td>
<td>0.206</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOVN2</td>
<td>0.170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOVN12</td>
<td>0.239</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REGU5</td>
<td>0.288</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REGU8</td>
<td>0.175</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STRAT8</td>
<td>0.176</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EFFC2</td>
<td></td>
<td>0.152</td>
<td></td>
</tr>
<tr>
<td>GOVN3</td>
<td></td>
<td>0.195</td>
<td></td>
</tr>
<tr>
<td>GOVN6</td>
<td></td>
<td>0.173</td>
<td></td>
</tr>
<tr>
<td>GOVN7</td>
<td></td>
<td>0.214</td>
<td></td>
</tr>
<tr>
<td>GOVN10</td>
<td></td>
<td>0.191</td>
<td></td>
</tr>
<tr>
<td>REGU3</td>
<td></td>
<td>0.246</td>
<td></td>
</tr>
<tr>
<td>RISK4</td>
<td></td>
<td>0.241</td>
<td></td>
</tr>
<tr>
<td>STRAT10</td>
<td></td>
<td>0.126</td>
<td></td>
</tr>
<tr>
<td>GOVN9</td>
<td></td>
<td></td>
<td>0.246</td>
</tr>
<tr>
<td>REGU1</td>
<td></td>
<td></td>
<td>0.577</td>
</tr>
<tr>
<td>REGU2</td>
<td></td>
<td></td>
<td>0.302</td>
</tr>
<tr>
<td>REGU6</td>
<td></td>
<td></td>
<td>0.201</td>
</tr>
<tr>
<td>RISK5</td>
<td></td>
<td></td>
<td>0.246</td>
</tr>
<tr>
<td>STRAT7</td>
<td></td>
<td></td>
<td>0.139</td>
</tr>
</tbody>
</table>
specifying the structural model; and
assessing structural model validity.

**Phase 1 - Defining individual constructs**

SEM must be based on good measurement theory. In other words, the definition of the constructs and their hypothesised relationships must have a sound theoretical justification. In this phase, some type of pre-test with respondents similar to those from the population to be studied is necessary to screen items for appropriateness. These pre-tests also include the establishment of the reliability and the validity of the measuring instruments used to capture these constructs.

**Phase 2 - Developing the overall measurement model**

This phase entails the identification of each latent construct to be included in the model as well as the measurement indicator variables assigned to each latent construct. This phase also involves the specification of error items for each indicator. In Figure 9.1 an example of a basic measurement model is illustrated.

**FIGURE 9.1: VISUAL REPRESENTATION (PATH DIAGRAMME) OF A MEASUREMENT MODEL**

Source: Hair et al. (2006: 736)
The simple measurement model in Figure 9.1 shows a total of 17 estimated parameters (eight construct indicators, eight error estimates and one correlation estimate between the two constructs).

**Phase 3 - Designing a study to produce empirical results**

This phase involves decisions about the research design that would facilitate the achievement of the research objectives. These decisions include whether to use covariance or correlations in analysing the data; how to handle missing data; determining the sample size and its implications; determining the model structure; estimating the model; and choosing the computer program for estimation.

With regard to correlations versus covariances, Hair *et al.* (2006:738) recommend the use of the latter as they provide the researcher with far more flexibility due to the relatively greater information content they contain. It is important to address the issue of missing data, especially when the latter are in a non-random pattern or more than ten percent of the data items are missing. One approach handle missing data includes the elimination of a complete case when the more than ten percent reason obtains, while a second approach pursues the use of all the available data.

SEM requires a larger sample relative to other multivariate approaches, since some of the SEM algorithms are unreliable in small samples. Sample size also provides a basis for the estimation of sampling error and has implications for the distribution of the data; method of estimation (for example Maximum likelihood versus Principal component analysis); model complexity allowed; amount of missing data allowed; and the amount of average error variance among the reflective indicators allowed.

The most important step in the research design to achieve the research objectives is determining and communicating the theoretical model structure to the SEM computer program. This entails the specification of the model parameters that are to be estimated. The specification of free and fixed
parameters is the critical difference between SEM and many other statistical techniques. A free parameter is one that is left to the computer program to estimate, while a fixed parameter is one of which the value is specified by the researcher. Most often a fixed parameter is fixed to a value of one which indicates a 100% correlation. For example, an independent variable could carry a fixed parameter of one, indicating that such a variable is 100% correlated to itself.

Once the model is specified, researchers must choose how the model will be estimated. In other words, researchers must determine what mathematical algorithm will be used to identify estimates for each free parameter. These mathematical algorithms are carried out by the use of computers. The most widely used computer software program used for SEM is LISREL (Linear structural relations).

**Phase 4 - Assessing the measurement model validity**

This phase seeks to answer the question as to whether the measurement model used was valid. Measurement model validity depends on the goodness-of-fit of the measurement model and specific evidence of construct validity. Goodness-of-fit is a measure of how accurate the actual or observed input covariance matrix matches the matrix that the theoretical model predicts. The Root Mean Square Error of Approximation (RMSEA) is an example of a goodness-of-fit index that is mostly reported for the assessment of model validity.

**Phase 5 - Specifying the structural model**

This phase involves the specification of the structural model by estimating the relationship between constructs based on the proposed theoretical model. Path diagrams are constructed that indicate the structural relationships among constructs. Although the focus in this phase is on the structural model, estimation of the SEM model requires that the measurement specifications be included as well. In this way, the structural model represents both the
measurement (constructs and their indicators) and structural part (relationships among constructs) of SEM in one overall model.

**Step 6 - Assessing structural model validity**

This final phase of SEM entails the test of how well a researcher's theory about the relationships among constructs really matches reality. Reality in SEM is represented by an observed sample covariance matrix. In other words, this phase answers the question as to whether the hypothesised relationships among constructs match the relationships estimated in the covariance matrix. This second assessment of fit provides an evaluation of the overall fit of and the individual parameter estimates for the structural paths in the structural model.

9.2.4 The path model for the determinants of operational efficiency in pension funds: The empirical results

The path model investigated the relationship between selected independent variables (fund leadership, fund governance and fund regulations) on the dependent variable, operational efficiency. The path model depicted in Figure 9.2 was constructed to test the following hypothesised relationships:

H1a: Fund governance exerts a positive influence on operational efficiency of pension funds
H2a: Fund regulations exert a positive influence on operational efficiency of pension funds
H10a: Fund leadership exerts a positive influence on operational efficiency of pension funds

In Figure 9.2 the latent variables, fund leadership, fund governance, fund regulations and operational efficiency are depicted by the elliptic shapes, FLEAD, FGOVN, FREGU and OPEFF respectively. The manifest variables, in other words, the scale items measuring the latent construct, are shown inside rectangular frames. ETHC4 is for example a manifest variable measuring fund leadership; GOVN3 is a manifest variable measuring fund
governance. Small circles indicate measurement errors (compare E1 to E35). A single-headed arrow indicates a dependence relationship, for example, between FLEAD and OPEFF. A numerical value 1.0, for example E1 and ETHIC4, indicates a fixed parameter along that path. A double-headed arrow symbolises a covariance relationship between two variables, for example the relationship between the latent variables FLEAD and FGOVN.

FLEAD, FGOVN and FREGU are exogenous (independent) variables because they emit single-headed arrows, while OPEFF is an endogenous (dependent) variable, because it receives single-headed arrows. The error term, denoted by the Z1 symbol, represents the error in the structural equation that results from either random error or systematic influences, which are not explicitly specified in the model.
FIGURE 9.2: PATH ANALYSIS MODEL FOR IMPROVING THE OPERATIONAL EFFICIENCY OF PENSION FUNDS
The manifest variables shown in Figure 9.2 are derived from the empirical factor structure that emerged from the factor analyses previously conducted (see Table 9.1). The items ETHC4, GOVN2, GOVN12, REGU5, REGU8, and STRAT8 loaded on the factor ‘fund leadership’ in the factor analysis. These items now represent the manifest variables (indicators or measures) of distribution channel development in the causal model in Figure 9.2. EFFC2, GOVN3, GOVN6, GOVN7, GOVN10, REGU3, RISK4 and STRAT10 are the manifest variables of ‘fund governance’, while GOVN9, REGU1, REGU2, REGU6, RISK5 and STRAT7 are the manifest variables of ‘fund regulations’.

The causal model was analysed by means of the LISREL statistical software package (LISREL 8.80, Jöreskog and Sörbom 2004 as cited in Scientific Software International 2006) and the results recorded in Figures 9.3 and 9.4.
FIGURE 9.3: PATH ANALYSIS MODEL FOR IMPROVING THE OPERATIONAL EFFICIENCY OF PENSION FUNDS – EMPIRICAL RESULTS

Note:
1) NS denotes non-significant relationships
Figure 9.3 shows that all the path coefficients are not significant at the 0.01 level of significance. This means that, as defined in this study, fund leadership, governance and regulatory framework do not influence the operational efficiency of pension funds significantly.

To establish the extent to which the proposed model represents an acceptable approximation of the data, the fit indices of the model need to be examined. The indices reported in the present study include the Satorra-Bentler Chi-square and RMSEA (root mean square error of approximation).

The Chi-square index is the “… conventional overall test of fit in covariance structure analysis [which] assesses the magnitude of the discrepancy between the sample and fitted covariance matrices” (Hoyle 1995:77). This measure of fit is still in popular use among researchers and extensively reported in international journals. The Chi-square has however been criticised on its ability to indicate the differences between equivalent models (Hair et al. 2006:746). It has been established that the Chi-square exhibits the tendency to indicate significant differences between the predicted and actual matrices as the sample size increases. This would mean that the hypothesised fit would be rejected when not necessarily significant. Due to this shortcoming of the Chi-square, only the RMSEA will be used to assess overall fit of the subsequent models to be discussed in the present study. The Chi-square will however be recorded for the purposes of completion and for the benefit of the interested reader.

The RMSEA gives an indication of the goodness-of-fit that can be expected if the hypothesised model is estimated in the population and not only in the sample and is not influenced by sample size. The RMSEA is therefore used because it eliminates the shortcomings of the Chi-square test (Hair et al. 2006: 748). An RMSEA value of between zero (0) and 0.05 indicates a close fit between0.05 to 0.08 a reasonable fit and above 0.08 a poor fit (MacCullum, Browne and Sugawara 1996).
The indices of fit for the model depicted in Figure 9.3 are shown in Table 9.2. The RMSEA index indicates a close fit.

**TABLE 9.2: FIT INDICES - THE DETERMINANTS OF OPERATIONAL EFFICIENCY**

<table>
<thead>
<tr>
<th>SAMPLE SIZE</th>
<th>SATORRA-BENTLER CHI-SQUARE</th>
<th>Df</th>
<th>PROBABILITY EXCEEDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>362</td>
<td>681.425</td>
<td>554</td>
<td>p &lt; 0.05</td>
</tr>
</tbody>
</table>

Root mean square error of approximation (RMSEA) = 0.025

Based on the empirical results (path coefficients) summarised in Figures 9.3 and 9.4, the revised hypotheses (H1a, H2a and H10a), that the determinants exert a positive influence on operation efficiency are not supported, while the null hypotheses H01a and H02a are supported. The empirical results show that the determinants, fund leadership, fund governance and fund regulations, exert no influence on operational efficiency.

The above-mentioned results were further explored in an attempt to confirm the findings. A multiple regression analysis was conducted with fund leadership, fund governance and fund regulations and independent variables and operational efficiency as the dependent variable. This analysis confirmed that there were no significant relationships among the independent variables and the dependent variable. The SEM and multiple regression results were therefore accepted as a true reflection of the respondents’ perceptions.

**9.2.5 The interactive relationships among the determinants of operational efficiency**

Besides the direct causal relationships among the exogenous and endogenous variables, correlations among the exogenous variables were also calculated. Correlational relationships do not show the causal impact of one variable on another variable, but do indicate that one variable significantly
influences another variable. Important information can be derived from the
correlational relationships in the context of the present study as they could
answer important questions such as:

- Does compliance with the regulatory framework influence the type of
  leadership that is exhibited in pension funds and vice versa?
- Does compliance with the regulatory framework influence the type of
  governance that is exhibited in pension funds and vice versa?
- Does the type of leadership exhibited in pension funds influence the
  governance of these funds and vice versa?

Figure 9.4 reveals that none of the above-mentioned correlations are
significant. This means fund leadership, fund governance and fund
regulations do not influence one another significantly. These results are
interpreted and discussed in Chapter 10.
FIGURE 9.4: THE INTERACTIVE RELATIONSHIPS AMONG INDEPENDENT VARIABLES

Note: All relationships are significant at the p<0.01 level of significance
9.2.6 The relationship between membership age, fund design, fund size and the operational efficiency of pension funds

One-way ANOVAs were conducted to test the influence of membership age, fund design and fund size on the operation efficiency of pension funds. The tests were conducted to test the following hypotheses (see chapter 7):

H6a: Pension fund design is positively related to the operational efficiency of pension funds
H7a: Membership age is negatively related to the operational efficiency of pension funds
H8a: Fund size is positively related to the operational efficiency of pension funds

The results of these analyses are reported in Table 9.3.

**TABLE 9.3: THE RELATIONSHIP BETWEEN OPERATIONAL EFFICIENCY, MEMBERSHIP AGE, FUND DESIGN AND FUND SIZE – MAIN EFFECTS ANOVA RESULTS**

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund size</td>
<td>0.68</td>
<td>0.606</td>
</tr>
<tr>
<td>Fund design</td>
<td>0.20</td>
<td>0.655</td>
</tr>
<tr>
<td>Membership age</td>
<td>0.15</td>
<td>0.863</td>
</tr>
</tbody>
</table>

Degrees of freedom error = 354

Note: * = significant at p < 0.01 level

The results show that none of these relationships are significant. This means that fund size and design, and membership age are not significantly related to the operational efficiency of pension funds. Hypotheses H6a, H7a and H8a are not supported, while the null hypotheses H06a, H07a and H08a are supported.
9.2.7 The relationship between membership age, fund design, fund size and financial efficiency (DEA) of pension funds

Main effects ANOVA was conducted to test the relationship between membership age, fund design and fund size, on the one hand, and financial efficiency (DEA) of pension funds on the other hand.

The test was conducted to test the following hypotheses (see chapter 7):

H6b: Pension fund design is related to the financial efficiency of pension funds (as measured by DEA)
H7b: Membership age is negatively related to the financial efficiency of pension funds (as measured by DEA)
H8b: Fund size is positively related to the financial efficiency of pension funds (as measured by DEA)

The results of these analyses are reported in Tables 9.4, 9.5 and 9.6.

**TABLE 9.4: THE RELATIONSHIP BETWEEN FINANCIAL EFFICIENCY, MEMBERSHIP AGE, FUND DESIGN AND FUND SIZE – MAIN EFFECTS ANOVA**

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>F-value</th>
<th>p-value</th>
<th>Partial eta-squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund size</td>
<td>38.20</td>
<td>0.000*</td>
<td>0.301</td>
</tr>
<tr>
<td>Fund design</td>
<td>1.63</td>
<td>0.203</td>
<td>0.005</td>
</tr>
<tr>
<td>Membership age</td>
<td>0.91</td>
<td>0.403</td>
<td>0.005</td>
</tr>
<tr>
<td>Degrees of freedom error = 354</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * = significant at p < 0.01 level
The results (Table 9.4) show that only the fund size is related ($F = 38.10, p < 0.01$) to financial efficiency. Pearson correlation coefficients were calculated for this relationship, which shows a negative relationship between these two variables ($r = -0.54, p < 0.05$). This means that pension funds with fewer members are perceived to be more financially efficient than larger pension funds. Based on these results, the null hypothesis $H_{0b}$ is supported, while hypothesis $H_{8b}$ is not supported.
The results (Table 9.4) further show that fund size explains 30% of the variance in financial efficiency (DEA scores). The Scheffé test (Table 9.6) reveals that the DEA mean score (Table 9.5) for the category of pension funds with membership fewer than 100 is significantly different from the DEA mean score of pension funds exceeding 100.

Fund design and membership age (Table 9.3) are not significantly related to financial efficiency and the DEA mean scores do not differ significantly between the two fund designs as well as the membership age categories. The null hypotheses H06b and H07a are supported, while hypotheses H6b and H7 are not supported. It means that defined benefit (DB) pension fund designs are not more financial efficient than defined contribution (DC) designs and vice versa. The results however show that there were more DB (306) than DC (56) pension funds in the sample.

9.2.8 The relationship between fund governance, regulations, leadership and financial efficiency

One-way Anova was used to test the relationship between fund governance, regulations, leadership and financial efficiency. The results are reported in Table 9.7.

The analysis was conducted to test the following hypotheses (see figure 8.2c):

H1b: Fund governance is positively related to the financial efficiency of pension funds.

H2b: Adherence to fund regulations is positively related to the financial efficiency of pension funds.

H10b: Fund leadership is positively related to the financial efficiency of pension funds.

The results of these analyses are reported in Table 9.7.
TABLE 9.7: THE RELATIONSHIP BETWEEN FUND GOVERNANCE, REGULATIONS, LEADERSHIP AND FINANCIAL EFFICIENCY

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund governance</td>
<td>1.25</td>
<td>0.307</td>
</tr>
<tr>
<td>Fund regulations</td>
<td>0.93</td>
<td>0.458</td>
</tr>
<tr>
<td>Fund leadership</td>
<td>1.11</td>
<td>0.364</td>
</tr>
<tr>
<td>Degrees of freedom error = 38</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * = significant at p < 0.01 level

The results show that fund governance, regulations and leadership are not significantly related to financial efficiency. This means that the importance that managers of pension funds attach to fund regulations and how the fund is governed and led do not play a role in achieving financial efficiency. Based on the empirical results the null hypotheses H01b and H02b cannot be rejected, while hypotheses H1b, H2b and H10b are not supported.

9.2.9 The relationship between the operational and financial efficiency of pension funds

One-way ANOVA was conducted to test the relationship between operational and financial efficiency of pension funds. This analysis was conducted to test the following hypothesis (see chapter 7):

H9: Operational efficiency is positively related to the financial efficiency (as measured by DEA) of pension funds.

The results of this analysis are reported in Table 9.8.
TABLE 9.8: THE RELATIONSHIP BETWEEN OPERATIONAL EFFICIENCY ON FINANCIAL EFFICIENCY

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational efficiency</td>
<td>0.93</td>
<td>0.458</td>
</tr>
</tbody>
</table>

Degrees of freedom error = 38

Note: * = significant at p < 0.01 level

The results show that operational efficiency is not significantly related to financial efficiency. Hypothesis H9 is therefore not supported, while the null hypothesis H09 is supported. This means that operational efficiency, as measured in this study, does not impact on financial efficiency.

9.2.10 Additional data analyses

For the purpose of completeness, additional data analyses were conducted to test relationships amongst the variables. These analyses include:

- The relationship between membership age, fund design, fund size and fund governance
- The relationship between membership age, fund design, fund size and fund leadership
- The relationship between fund regulations, governance and leadership

9.2.10.1 The relationship between membership age, fund design, fund size and fund governance

One-way ANOVAs were conducted to test the influence of membership age, fund design and fund size on fund governance. The results of these analyses are reported in Tables 9.9, 9.10 and 9.11.
### TABLE 9.9: THE RELATIONSHIP BETWEEN FUND GOVERNANCE, MEMBERSHIP AGE, FUND DESIGN AND FUND SIZE

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund size</td>
<td>0.70</td>
<td>0.608</td>
</tr>
<tr>
<td>Fund design</td>
<td>0.65</td>
<td>0.420</td>
</tr>
<tr>
<td>Membership age</td>
<td>4.33</td>
<td>0.013*</td>
</tr>
</tbody>
</table>

Degrees of freedom error = 354

Note: * = significant at p < 0.05 level

### TABLE 9.10: THE RELATIONSHIP BETWEEN FUND GOVERNANCE, MEMBERSHIP AGE, FUND DESIGN AND FUND SIZE – MEANS AND STANDARD DEVIATIONS

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Category</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund size</td>
<td>&lt; 100</td>
<td>82</td>
<td>4.81</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>101 – 200</td>
<td>94</td>
<td>4.82</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>201 – 300</td>
<td>72</td>
<td>4.79</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td>301 – 400</td>
<td>58</td>
<td>4.79</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>401+</td>
<td>56</td>
<td>4.75</td>
<td>2.32</td>
</tr>
<tr>
<td>Fund design</td>
<td>Defined benefit</td>
<td>306</td>
<td>4.80</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>Defined contribution</td>
<td>56</td>
<td>4.77</td>
<td>0.35</td>
</tr>
<tr>
<td>Member age</td>
<td>&lt;20 years</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>21 – 30</td>
<td>35</td>
<td>4.67</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>31 – 40</td>
<td>293</td>
<td>4.81</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>41+</td>
<td>34</td>
<td>4.79</td>
<td>0.21</td>
</tr>
</tbody>
</table>

### TABLE 9.11: THE RELATIONSHIP BETWEEN FUND GOVERNANCE, MEMBERSHIP AGE, FUND DESIGN AND FUND SIZE – SCHEFFÉ TEST

### FUND SIZE (as measured by number of members)

<table>
<thead>
<tr>
<th></th>
<th>&lt; 100</th>
<th>101 – 200</th>
<th>201 – 300</th>
<th>301 – 400</th>
<th>401+</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 100</td>
<td>0.999</td>
<td>0.997</td>
<td>0.995</td>
<td>0.781</td>
<td></td>
</tr>
<tr>
<td>101 – 200</td>
<td>0.999</td>
<td>0.985</td>
<td>0.979</td>
<td>0.659</td>
<td></td>
</tr>
<tr>
<td>201 – 300</td>
<td>0.997</td>
<td>0.985</td>
<td>0.999</td>
<td>0.926</td>
<td></td>
</tr>
<tr>
<td>301 – 400</td>
<td>0.995</td>
<td>0.979</td>
<td>0.999</td>
<td>0.985</td>
<td></td>
</tr>
<tr>
<td>401+</td>
<td>0.781</td>
<td>0.659</td>
<td>0.926</td>
<td>0.985</td>
<td></td>
</tr>
</tbody>
</table>

### MEMBERSHIP AGE (in years)

<table>
<thead>
<tr>
<th></th>
<th>21 – 30</th>
<th>31 – 40</th>
<th>41+</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 – 30</td>
<td>0.014*</td>
<td>0.190</td>
<td></td>
</tr>
<tr>
<td>31 – 40</td>
<td>0.014*</td>
<td>0.893</td>
<td></td>
</tr>
<tr>
<td>41+</td>
<td>0.190</td>
<td>0.893</td>
<td></td>
</tr>
</tbody>
</table>

Note: * = significant at 0.05      ** = significant at 0.01
The results (Table 9.9) shows that fund size and design are not significantly related to fund governance. This means that the number of members and whether it is a DB or DC fund are not related to the way the fund is governed.

The results however reveal that the age of members influences fund governance significantly. Pearson correlation coefficients were calculated to assess whether these relations are positive or negative. This analysis reveals that the relationship is positive \((r = 0.10, p > 0.05)\), but not significant. The Scheffé test (Table 9.11) however shows that there is a significant difference in the way a pension fund is governed when members are between 31 and 40 years old compared to the other age groups. The empirical results (Table 9.10) reveal that pension funds, where the majority of the members are between the ages 31 to 40, perceive themselves as governing their funds more effectively than the other age groups (mean score = 4.81 on a five-point scale). Pension funds with a majority membership between the ages of 21 and 30 years gave themselves a governance score of 4.67 compared to 4.79 where members are older than 41 years. It therefore appears that pension funds of middle-aged members (31 to 40 years old) are perceived to be better governed compared to the other age groups.

It is however interesting to note that, while the pension funds with the majority middle-aged members (31 to 40 years) are perceived to be better governed, they received the lowest average DEA score (see Table 9.5). Table 9.5 shows that funds with lower-aged members received a mean DEA score of 3.89 (87.8%), those with middle-aged members 3.44 (86.9%) and those with membership of over 41-years olds 3.58 (87.2%).

9.2.10.2 The relationship between membership age, fund design, fund size and fund leadership

Main effects ANOVAs were conducted to test the relationship between membership age, fund design, fund size and fund leadership. The results of these analyses are reported in Table 9.12.
TABLE 9.12: THE RELATIONSHIP BETWEEN MEMBERSHIP AGE, FUND DESIGN, FUND SIZE AND FUND LEADERSHIP

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund size</td>
<td>0.40</td>
<td>0.834</td>
</tr>
<tr>
<td>Fund design</td>
<td>0.01</td>
<td>0.918</td>
</tr>
<tr>
<td>Membership age</td>
<td>1.96</td>
<td>0.142</td>
</tr>
</tbody>
</table>

Degrees of freedom error = 354

Note: * = significant at p < 0.05 level

The results show that fund size and design, and membership age do not influence fund leadership significantly. This means that the number of members and their ages, and whether it is a DB or DC fund do not exert an influence on how the fund is led.

9.2.10.3 The relationship between fund regulations, fund governance and fund leadership

Simple regression analyses were conducted to measure the relationship between fund regulations, governance and leadership. The results are reported in Table 9.13.

TABLE 9.13: THE INFLUENCE OF FUND REGULATIONS ON FUND GOVERNANCE AND LEADERSHIP – SIMPLE LINEAR REGRESSION RESULTS

<table>
<thead>
<tr>
<th>Dependent variable: FUND GOVERNANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R^2 = 0.064$</td>
</tr>
<tr>
<td>$F = 24.709, p &lt; 0.000$</td>
</tr>
<tr>
<td>Standard error of estimate = 0.27260</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Regression coefficient</th>
<th>t-test p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.848</td>
<td>0.000*</td>
</tr>
<tr>
<td>Fund regulations</td>
<td>0.199</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent variable: FUND LEADERSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R^2 = 0.096$</td>
</tr>
<tr>
<td>$F = 38.237, p &lt; 0.000$</td>
</tr>
<tr>
<td>Standard error of estimate = 0.26484</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Regression coefficient</th>
<th>t-test p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.704</td>
<td>0.000*</td>
</tr>
<tr>
<td>Fund regulations</td>
<td>0.241</td>
<td>0.000*</td>
</tr>
</tbody>
</table>

Note: * = significant at p < 0.01
Although the empirical results showed that fund leadership, fund governance and fund regulations were not significantly related in the SEM models (see section 9.2.4, Figure 9.4) simple linear regression analysis indicate that fund regulations are significantly positively related to fund governance ($r = 0.199, p < 0.01$) and leadership ($r = 0.240, p < 0.01$). These influences are however very small: 6% in the variance of fund governance ($R^2 = 0.064$) and almost 10% in the case of fund leadership ($R^2 = 0.096$). Although not at a rigorous statistical level (as in the case of SEM), these results show that perceived importance of fund regulations influences the way funds are governed and led.

### 9.3 COMMUNICATIVE VALIDATION OF EMPIRICAL FINDINGS

A focus group of 24 pension fund trustees was assembled to discuss the empirical results of the present study. The purpose was to clarify the non-significant relationships among most of the investigated relationships. TerreBlanche, Durrheim and Kelly (2006:381) recommends that the communicative validity (veracity or truthfulness) of knowledge be tested in dialogue with either the respondents, general public or scientific community of scholars. The following is a summary of selected points of feedback from the focus group:

**Question 1:** Was a proper instrument used to measure operational efficiency of pension funds?

The respondents stated that the instrument used to measure operational efficiency (see Annexure 3) was a good reflection of how pension funds operate.

**Question 2:** Why do the empirical results indicate that fund leadership does not significantly influence operational efficiency?

The respondents regarded this result as surprising, since the CEO and trustees influence all decisions in the pension fund. A non-significant
relationship could however have been caused by (1) the absence of accredited performance measures (an indicator of fund leadership in the present study) for pension funds in Kenya and (2) the fact that not all trustees are experts on pension fund management issues. Trustees are elected by members through a popular vote, while the sponsor nominates the others.

Question 3: Why do the empirical results indicate that fund governance does not significantly influence operational efficiency?

The respondents did not find this result surprising, because the indicators of fund governance in the present study were lacking in Kenya. The indicators that are lacking include internal control systems; the use of information technology in recording of information (for example, errors on members statements and poor record keeping practices); no relevant financial and management education to trustees; no benchmarking of pension funds in Kenya; and no clear communication channels in the organisations.

Question 4: Why do the empirical results indicate that fund regulations do not significantly influence operational efficiency?

Again, the respondents did not find this result surprising. They suggested that the pension laws are too rigid. Trustees therefore have little room to think beyond the RBA regulations.

Question 5: Why do the empirical results indicate that fund regulations do not significantly influence fund leadership and why membership age, fund design and fund size do not influence fund leadership?

The respondents stated that leadership principles are the same regardless of regulations, membership age, fund design and fund age.
Question 6: Why do the empirical results indicate that smaller funds are financially more efficient?

The respondents concur with the empirical findings of the present and previous studies that smaller pension funds are “easier to manage”.

Question 7: Why do the empirical results indicate that the membership of 31 to 40 years influence how pension funds are governed and led?

The respondents suggested that membership age influences the investment strategy. Older members prefer investments in guaranteed funds, while the middle-age group (31 to 40 years) prefer a dynamic investment strategy.

Question 8: Why did the fund risk variable perform so poorly in the study? (The fund risk variable did not emerge as a separate variable, but four loaded on three other latent variables)?

The respondents suggested that there are no guidelines relating to risk management for Kenyan pension funds. A liberal discretion is granted to fund managers.

To summarise: While some of the results appear to be inconsistent with previous research findings and popular theories, they reflect the material situation in the Kenyan context as far as pension funds are concerned. An important shortcoming highlighted by this communicative validation process, is that the pension fund trustees were not the most knowledgeable persons on the management of pension funds. Interpretation of the empirical results should therefore be done against that background.

9.4 SUMMARY

In this chapter the empirical results were reported. The results indicate that there is no significant relationship between fund leadership, governance and regulations, on the one hand, and operational efficiency on the other. The
results however reveal that the size of the fund influences financial efficiency, while the age of the members influence fund governance. The results further indicate that fund regulations influence the way the fund is governed and led. In the following chapter the most important focus is the implications these results have for managers of pension funds.
CHAPTER 10

SUMMARY, CONCLUSION AND RECOMMENDATIONS

10.1 INTRODUCTION

This chapter provides a discussion of the findings reported in chapter nine, the conclusions of the study are drawn and recommendations for enhancement of pension fund efficiency in elucidated. It must be noted that this study was conducted on pension funds in Kenya and the results are therefore primarily applicable to the Kenyan pension fund environment. The final section of this chapter suggests areas for further research.

10.2 SUMMARY OF EMPIRICAL RESULTS

The empirical results of the study can be summarised as follows:

- Pension fund leadership has no significant influence on operational efficiency;
- Pension fund governance has no significant influence on operational efficiency;
- Pension fund regulations have no significant influence on operational efficiency;
- Membership age have no significant influence on DEA efficiency;
- Pension fund design does not have a significant influence on DEA efficiency;
- Pension fund size has a significantly negative influence on DEA efficiency \((r=-0.54, p<0.05)\);
- Pension fund design does not have a significant influence on operational efficiency;
- Pension fund design does not have a significant influence on leadership;
- Membership age does not have a significant influence on operational efficiency of pension funds;
• Membership age influences pension fund governance. Pension funds with membership aged 31 - 40 are perceived to be better governed compared to other age groups;

• Membership age does not have a significant influence on fund leadership;

• Pension fund size does not have a significant influence operational efficiency;

• Pension fund size does not have a significant influence on fund governance;

• Pension fund size does not have a significant influence on fund leadership;

• Fund regulations have no significant influence on DEA efficiency;

• Fund regulations have no significant influence on governance using SEM. Use of simple linear regression however discloses a significant positive influence between the two variables (r = 0.20, p<0.01);

• Fund regulations have no significant influence on leadership using SEM. Use of simple linear regression however discloses a significant positive influence between the two variables (r = 0.24, p<0.01); and

• Operational efficiency has no significant influence on DEA efficiency (0.458, p<0.01).

These results are discussed (1) in terms of previous research findings and (2) implications for pension fund managers.

10.3 THE EMPIRICAL RESULTS IN RELATION TO PREVIOUS RESEARCH FINDINGS

This section integrates the empirical findings of the present study with those of previous studies.

10.3.1 The influence of fund leadership on operational efficiency

Empirical results of the present study showed that fund leadership does not exert a significant influence on operational efficiency. This result does not support the findings of Friedberg and Webb (2003), and Lerner, Schoar and
Wongsunwai (2007) who reported that leadership influences financial performance of the pension funds significantly since all pension fund management issues revolve around it.

The results of the present study mean that steering the pension fund towards strategic cost management, improving records processing system, maintaining appropriate funding levels, complying with the pension law, conducting efficient trustee meetings and ensuring timely payment of retirement benefits do not influence pension fund efficiency significantly. Clark and Urwin (2009:17) disagree by stating that the greater responsibility of leading pension funds to achieve these objectives lies with the board and investment committee chairs.

The results of the present study could however suggest that there is a lack of leadership in Kenyan pension funds or a lack of understanding of how pension funds should be led. This could indeed be the case given the hurdles in today’s business environment. Firstly, talented leaders are in short supply because of competing demands for experienced professionals. Meager compensation offered by the pension funds compound the difficulty. Secondly, increasing complexity in investment management and performance has made leadership significantly harder to sustain within normal time parameters (Clark and Urwin 2009:18).

Another factor that could have led to the insignificant relationship between fund leadership and efficiency is the CEO leadership of pension funds in Kenya. The presence of the CEOs in the board of trustees makes them the default leaders on pension fund matters because all other trustees are subordinate to the CEOs (Teisseire 2009). This means that the CEOs can easily influence the pension fund decisions and the agenda in the board of trustees’ meetings to favour the sponsoring company at the expense of the pension fund. Supporting this argument, Ambachtsheer et al. (2008) conclude that pension funds that maintain the CEOs as the pension fund board’s chair, record lower efficiency levels compared to those that the CEO takes a lesser active role. Ambachtsheer et al. (2008:19) notes “…. pension boards that are
led by the CEO have weak supervising functions that lead to difficulties in sorting out the competing financial interests of different stakeholders.” Moreover, the CEO’s powerful influence may lead to apathy on the part of the trustees since the CEO still controls the trustees who are employees (Colvin, 2001; Bebchuk and Fried, 2004; Hodgson, 2004).

10.3.2 The influence of fund governance on operational efficiency

The empirical results of the study showed that fund governance does not exert a significant relationship on operational efficiency. This means that pension fund governance does not lead to improved pension fund efficiency. The result further shows that reducing the benefits processing period, providing relevant education to the trustees, maintaining an appropriate internal control system, communicating regularly with members, defining the roles of the trustees clearly, regulating the fees charged by the service providers, controlling default risk on the part of the sponsor and implementing investment strategies that are based on requisite market research do not improve operational efficiency.

Odundo (2008) disagrees with the above-mentioned finding that reducing the benefits processing period does not influence operational efficiency. Odundo (2008) found that timely processing and payment of retirement benefits create confidence and trust in the leadership that governs the pension fund. The empirical results are also dissonant with Impavido’s (2002:28) findings that pension efficiency depends on ensuring remittance of contributions to the pension board in a timely manner and ensuring timely and correct payment of benefits.

Previous research findings do not support the result of the present study that the provision of relevant education to the trustees does not improve fund efficiency. Various researchers found that the level of education of trustees is positively correlated with the financial performance of pension funds (Lusardi and Mitchell 2007a; Kimball and Shumway 2006:10; Hilgerth et al. 2003; Clark et al. 2006; Lusardi and Mitchell 2006; Nyce 2005:17).
The empirical results suggest that the maintenance of appropriate internal control systems does not influence operational efficiency significantly. This results militates against the recommendations of the Institute of Pension Supervisors (IOPS) (2007b:21), the Canadian Association of Pension Supervisory Authorities (2004), Kyiv (2003) and Stewart (2009) to institute and maintain effective internal control systems.

The empirical results suggest that regular communication to members does not increase operational efficiency of pension funds. This result is incongruent with the findings of Stewart (2009:1), Casanova (2001:48), Mitchell and Tang (2008:6), Ambachtsheer (2007b:4) and Aon (2005b:2) that regular communication with pension fund members increase their understanding of how pension funds work, how to interpret the performance of pension funds and how to contribute to decision making.

Previous research results do not support the finding of the present study that a clear definition of the roles of trustees improves operational efficiency in pension funds. Previous studies reported that the responsibilities of trustees should be clearly defined as they act as guidelines on the mandate that the pension fund members have granted to them (Stewart and Yermo 2008a; Stewart 2009; Kiptim 2007; Moriarty and Zadorozny 2008).

The empirical results suggest that the regulation of service providers does not improve the operational efficiency of pension funds. This result does not support the recommendations of Bateman and Mitchell (2004) and the National Treasury (2004:58) of South Africa that the regulation, for example, of fees, services and remuneration of service providers are important for the governance and general management of pension funds. Ahmed (2008) also supports regulation, as the absence thereof means that fees and services offered by pension funds would differ significantly. The result is that pension fund leadership continuously have to source more affordable consultants.
The empirical results revealed that sponsor default risk (the perception the sponsor might cease to exist) does not influence operational efficiency of pension funds. This finding seems to suggest that respondents regard this happening as unlikely, or that there are ways to handle this eventuality. Rauh (2006) for instance advised that sponsor default risk be mitigated by pension fund management bodies undertaking the management of retirement funds on behalf of various sponsors.

The results of the present study indicate that implementing investment strategies based on market research does not improve the operational efficiency of pension funds. This result is at odds with Kakes’ (2006) recommendation that investment strategy, both short- and long-term, be based on adequate market research, as such research would assist in identifying expected pension fund returns and the accompanying investment risk. This result is also incongruent with the importance the OECD (2009b) attaches to market research in investment strategy. According to the OECD (2009b), market research influences decisions such as the re-allocation of funds from bonds to equity or vice versa; the withdrawal of investments from specific markets (for instance at the height of the global economic crisis, investments in the equities in the western financial markets were withdrawn or further investments suspended); the venturing into new markets (for instance a shift from western financial markets to the markets in the emerging economies). Eaton and Nofsinger (2001:122) concur that market research is necessary as it ensures that a pension fund has a re-investment strategy in place and that pension funds do not act haphazardly when investments mature or after disposal of investments. If these advantages were spelt out to the respondents of the present study, different results could have emerged.

10.3.3 The influence of fund regulations on operational efficiency

The empirical results revealed that fund regulations do not exert a significant relationship on operational efficiency. This implies that the implementation of the following regulations does not improve the operational performance of pension funds: monitoring of performance of the service providers; regulation
of compliance costs; limiting the size of the pension fund board; conducting regulatory meetings; the separation of fund ownership from the sponsor's business; and the investment policy.

As far as the monitoring of performance of service providers is concerned, the empirical results do not support the recommendation of Carmichael and Palacios (2003:17), that the performance of the service providers should be evaluated and monitored closely on the basis of the service contracts signed with them. Service contracts ensure that the fees payable to service providers correspond with the services rendered. Carmichael and Palacios (2003:17) recommend that the element of performance monitoring should be included in the service contract and the consequences for deviation clearly stated.

The empirical results suggest that the regulation of compliance costs does not influence the operational efficiency of pension funds. This result does not support the need to regulate excessive compliance costs, as the latter weigh down pension benefits and could lead to pension fund inefficiency (Queisser 1998; Chlon-Dominczak 2003). As regulating authorities tighten and change pension laws, it impacts on the pension funds, as the latter have to incur costs in order to comply fully. For instance the requirement that pension funds conduct actuarial valuation on triennial basis or formulate an investment policy every three years forces them to spend on consultants (Odund 2006). The incongruency between the empirical results of the present study and previous studies on fund regulations could have been caused by a lack of a proper understanding of how compliance costs impact the operational efficiency of their pension funds, or how operational efficiency was measured.

The empirical results indicate that limiting the size of the board of trustees does not influence the operational efficiency of pension funds significantly. The result seems to suggest that the size of the board is immaterial to the operational efficiency of pension funds. Hess and Impavido (2003:21) and Yermo (2008b) however found that large pension fund boards are ineffective,
because they take long-time to reach decisions, have difficulties achieving quorums in meetings and require wider consultations on all issues. The empirical results suggest that convening regulatory meetings does not influence operational efficiency in pension funds significantly. The Kenyan RBA (2008) stipulates statutory meetings of pension fund trustees with administrators, fund managers and custodians of importance in pension fund management. These meetings are held quarterly to evaluate the quarterly financial performance of the pension fund. The empirical results suggest that respondents do not view these meetings as an important factor in achieving operational efficiency in pension funds in Kenya. This finding begs the question as to whether this reflects a lack of leadership in pension funds in Kenya.

The separation of fund ownership from the sponsor’s business is an important matter in pension funds. Separating the affairs of the pension fund from those of the sponsor’s business means that the trust legally segregates the assets of the pension fund from other monies (Galer 2009). The separation protects the pension fund assets from being confused with those of the trustees, sponsoring employers or custodians. Separation also protects the assets from the creditors of the sponsors, trustees and custodians (Galer 2009:4).

In public pension funds, where public members are the fund owners, problems may arise as another group (the government) controls the pension funds. In private pension funds the ownership resides with the risk bearer or the residual claimant in the event of winding up a pension fund (Besley and Prat 2002). This means that for a defined contribution pension fund the claimants are the members and for a defined benefit pension fund, the claimants are the sponsors.

The separation of the affairs of the pension fund from those of the sponsor therefore appears to be an important issue. The empirical results however indicate that this matter does not play a significant role in achieving operational efficiency in pension funds. This finding poses the question of
whether a clearer exposition of this questionnaire item would have rendered a
different result, or whether it reflects a lack of understanding among pension
fund leaders about the importance of this matter for pension funds.

The empirical results suggest that the implementation of a clear investment
policy does not influence operational efficiency of pension funds significantly.
This result does not support the assertion of the OECD (2006:2) that a
pension fund’s investment policy reflects its investment strategy and
dramatically affects pension fund returns. Pension fund returns are
dependent on a proper investment strategy as all pension fund assets are
held in the form of investments (equities, bonds, bank deposits and real
estate). The empirical results are also incongruent with previous research
findings which reported a positive relationship between the maintenance of a
statement of investment principles and financial performance of a pension
fund (Carmichael and Palacios 2003; Galer 2009; Rinaldi and Giacomel
2008:17). It is difficult to conclude that pension fund leaders do not
appreciate the importance of an investment policy. The insignificant
relationship between implementing a clear investment policy, on the one
hand, and achieving operational efficiency on the other hand, appears to be
the result of how operational efficiency was measured in the present study.

10.3.4 Influence of fund regulations and governance on fund leadership

Empirical results of the SEM analysis showed that fund regulations do not
have a significant direct influence on governance and fund leadership. Simple
linear regression analysis however indicated that fund regulations exert a
significant positive influence on fund governance ($r = 0.20, p<0.01$) and
leadership ($r = 0.24, p<0.01$). Figure 9.4 also indicates that these variables
are correlated. This means that the perceived importance of pension fund
regulations do exert an influence on the way pension funds are governed and
led. This result is supported by similar findings by Clark and Urwin (2009:7).

The empirical results further revealed a positive relationship between fund
governance and leadership ($0.32, p<0.05$). Clark and Urwin (2009) reported
similar findings and concluded that the two variables are related due to their association with the optimal allocation of resources; staffing; framing of delegated responsibilities; showing sensitivity to fund mission statements; attending to the culture of the organisation; and issues of accountability and performance measurement.

**10.3.5 Influence of membership age, fund design and fund size and on operational efficiency**

The empirical findings showed that the age of members in a pension fund does not have a significant influence on the operational efficiency of pension funds. This finding differs with that in Whelan (2005) and Charles et al. (2006) that depict pension funds with younger members as more efficient compared to those with older members as a result of their aggressive investment strategies.

The empirical results further indicated that the pension fund design does not have significant influence on operational efficiency. This could be attributed to the fact that many pension funds in Kenya have already converted their designs from defined benefit to defined contributions (Odundo 2008). In the present study only 16% of the pension funds operated on defined benefits principles.

The empirical results also revealed that pension fund size has no effect on operational efficiency of a pension fund. This finding is similar to those of Dahlquist et al. (2000), Gallagher and Martin (2005) and Chan et al. (2004).

**10.3.6 Influence of age, design and size on governance**

The empirical results showed a significant relationship between the membership age and governance. The results revealed that there is a significant difference in how a pension fund is governed when members are between 31 and 40 years old compared to the other age groups. This finding
leads to the conclusion that pension funds with a majority of members in the 31 to 40 year age bracket are more sincere about exercising their governance practices. This can be attributed to the fact that they have fewer benefit payouts than those with older members, and their pension fund leaderships are more experienced compared to those with younger members. This result confirms the lifecycle pattern observed in pension funds by Clark (2003). According to Clark (2003), the lifecycle theorem views pension funds with younger members as less robust in their operations due to low resources brought about by the insignificant resources in the pension fund. As the membership ages, contributions, managerial experiences and investments increase resulting to the pension funds increasing their returns significantly. As membership ages further, pension funds record lower returns as they are confronted with benefit payouts and consequent conservatism in the investment of funds.

10.3.7 Influence of membership age, fund design and fund size on fund leadership

The pension fund’s membership age, design and size does not exert a significant influence on leadership. No comparable study could be reviewed that focused on pension fund leadership as a dependent variable. The empirical result however suggests that fund leadership should be exercised with diligence, stewardship and commitment regardless of the age of the members, pension fund design or size.

10.3.8 Influence of fund size and membership age on financial efficiency

The empirical results show that membership age does not have a significant influence on financial efficiency. This finding contradicts the findings of Charles et al. (2006) that the age of the members influences the investments made by pension funds since those with younger members will be robust in their investments, whilst those with older members will tend to be conservative, thus limiting their returns on investments.
The empirical results further indicate that the fund size, as measured by the number of members of a pension fund, exerts an influence on financial efficiency. The results revealed that pension funds with fewer members are financially efficient. Bikker and Dreu (2009), Chen et al. (2004) and Mahon and Donohoe (2006) reported similar findings. These studies, among others, reported that in times of poor stock market performance smaller pension funds do not lose as much as the larger ones. In other words, larger pension funds are more risky than the smaller pension funds.

10.4 MANAGERIAL IMPLICATIONS OF THE RESEARCH

The most important results of the present study are the following:

- Fund size is related to financial efficiency, because smaller funds appear to be more financially efficient.
- Fund regulations influence the way pension funds are led, as better leadership is observed in pension funds that adhere to regulations.
- Fund regulations influence the way pension funds are governed, as better governance is observed in pension funds that adhere to regulations.
- Membership age influences fund governance, as pension funds with more middle-aged, 31 to 40 year old members, are perceived to be better governed compared to the other age groups.

10.4.1 Smaller versus bigger pension funds

In the present study, smaller funds are more efficient compared to the larger funds with more members. Large pension funds experience diseconomies of scale (Dahlquist et al. 2000:415). These diseconomies result from excessive administration costs incurred in communicating to the members, fund administration and regulatory levies (Gallagher and Martin (2005:60; Chan et al. 2004:6). According to Odundo (2008) and Nyakundi (2009), one of the issues that contribute to the inefficiency of the National Social Security Fund
in Kenya is the estimated membership of 800,000 members who are dispersed across the country. This increases the costs associated with the administration of members’ accounts and record keeping.

Pension funds with more members are expected to have a higher value in contributions and assets compared to smaller ones (Chan et al. 2004:7). The funds therefore receive sizable contributions that may result in inefficiency in investments (Dahlquist et al. 2000). Thus the larger pension funds have large sums of money at their disposal that they tend to invest in less profitable ventures as opposed to smaller pension funds with lesser financial resources that forces them to allocate the money judiciously to the most profitable opportunities. Moreover, the larger pension funds with huge investments in the stock market are exposed to more risk as opposed to the smaller funds (Bikker and Dreu 2009). With the bearish financial markets in the last three years (2007-2009), bigger pension funds lost more than the smaller pension funds due to the low values of stock market investments. Managers must therefore guard against their pension funds becoming too big.

10.4.2 Improving fund leadership and governance

The empirical results revealed that adherence to pension fund regulations improve fund leadership. It is recommended that managers adhere to the following regulations in order to improve fund leadership: regular monitoring of the performance of service providers; effective regulation of compliance costs; limiting the size of the pension fund board; regulatory meetings with service providers; separation of pension fund management from employer management and maintaining a clear investment policy. By doing so, the following leadership elements will be achieved: complete honesty in sharing information with members; respect to the CEO; the maintenance of an effective performance management system; compliance with RBA levies; adherence to RBA financial reporting regulations and the granting of full discretion to fund managers.
Why should these leadership elements be pursued? According to Clark and Urwin (2009), honest sharing of information ensures proper utilisation of pension fund authority, avoidance of conflict of interest and promotes transparency and openness in decision making. An effective CEO, according to Teisseire (2009), represents the interest of the pension fund in the board of the sponsoring company. Appropriate fund leadership is performance-oriented and maintains independent performance measurement systems (Ambatchsheer et al. 2008). Everybody in the pension fund, including external consultants, then would strive to achieve clear performance objectives.

Sound leadership ensures that pension funds avoid penalties and reduction of the fund’s wealth by complying to regulatory levies (Whitehouse 2000). Effective pension fund leaders engenders trust in investment managers to such an extent that full discretion in investment decisions can be granted to these managers. This leads to investment and administrative efficiencies according to Tang and Mitchell (2008:10), Bikker and Dreu (2009:17) and Chan-Lau (2005). Against this background, it is important that leadership in pension funds be enhanced, to reap the mentioned benefits.

The results also suggest that adherence to the above-mentioned regulations improve the following governance elements: a decreased benefit processing period; the provision of continuous finance education to trustees; an effective internal control system of documenting, monitoring and reporting operations; effective communication with members; clarity on the roles of trustees; control over the regulation of fees charged by service providers; financial stability (avoiding bankruptcy); and the implementation of market-related investment strategies.

It is important to pursue effective pension fund governance as espoused above because: timely processing and payment of retirement benefits engender confidence in the pension fund leadership (Odundo 2008), while continuous education of trustees improve the financial performance of pension funds (Lusari and Mitchell 2007a; Kimball and Shumway 2006;
Hilgerth et al. 2003). According to Stewart (2009), effective internal control systems provide protection against risk of financial losses, while regular communication to members ensures better investment decision making (Aon 2005b:2). The literature reveals that clearly defined roles for trustees eliminate bureaucracy, avoid haphazard action and prevent duplication (Stewart 2009; Moriarty and Zadorozny 2008) and the regulation of service providers ensures harmonised services and service fees (Bateman and Mitchell 2004). It has also been reported that reduced sponsor default risk guarantees benefit payments to retirees (Rauh 2006) while market research based investment strategies ensure that the long-term objectives of pension funds are achieved (Stanko 2002:3). It is therefore beneficial for pension fund managers to pursue the effective governance of their funds.

The empirical results revealed that pension funds with membership in the 31 to 40 years age bracket are perceived to be better governed. This can be attributed to the fact that these members have fewer benefit payouts than those with older members. This finding should also be interpreted against the discussion in section 10.4.1 above that smaller funds appear to be more financially efficient than bigger ones. Managers should therefore keep their pension funds within manageable limits and focus more aggressively during recruitment on members aged 31 to 40 years.

10.4.3 A conceptualisation of operational efficiency

The empirical results (exploratory and confirmatory factor analyses) revealed that operational efficiency in pension funds involves the following:

- continuously decreasing administration and investment management costs;
- maintaining and ensure improvement in the records processing systems;
- achieving appropriate funding levels (pension assets exceeding the present value of pension liabilities);
- compliance with the pensions law;
- avoiding conflict of interest with service providers;
• utilising trustees’ authority properly in making pension fund decisions
• remunerating the trustees;
• maintaining adequate and timely contributions to curtail the default risk from sponsors and members; and
• maintaining a fair balance between returns on investment and the pension fund risks.

Different studies (Bikker and Dreu 2009; Bateman and Mitchell 2004; OECD 2009b; James et al. 2005; Tang and Mitchell 2008; Hustead 2008) report that pension fund costs incurred in administration and investment management lead to low retirement benefits and returns on investments since the costs are paid to external consultants. Management of these costs should therefore lead to increased pension fund outputs (higher year end asset values and retirement benefits).

It is imperative for pension funds to maintain proper records processing systems (OECD 2009a:4; Carmichael and Palacious 2003:16). The maintenance of appropriate record processing system ensures that pension funds are able to track all the financial and non-financial details of the fund, facilitates timely preparation of financial statements and ensures faster computation of the retirement benefits due to retirees in addition to speedy identification of the beneficiaries in case of a member’s death. Pension funds that reap the benefits of improved record processing systems are thus deemed to be efficient.

The funding ratios are important indicators of pension fund efficiency (Yang and Mitchell 2005:2; Weller 2005:3-4; Weller and Baker 2005: 136; Mitchell and Smith 1994:279). These studies conclude that pension funds should maintain adequate asset values to cover their liabilities. The RBA act recommends a funding ratio of 80% and 100% for defined contribution and defined benefit pension funds respectively. Achieving these ratios is therefore an indication of pension fund efficiency.
Pension fund assets should exceed the pension fund liabilities estimated in present value terms to assure members that the pension fund is liquid and able to meet all its liabilities as and when they fall due. This ratio also affects the funds’ investment strategy, in that well funded pension funds should be able to bear investment risks better compared to the under-funded plans. There is therefore a close association between a pension fund’s funding status and its performance. An efficient pension fund should therefore take all reasonable measures to increase the funding ratio. To the contrary, pension funds are deemed to be inefficient (Franzoni and Marin 2006:923).

Pension funds that comply with the pension law on timely basis are perceived to be operationally efficient (Steele 2006:45). The pension laws impose time limits for compliance for instance, the RBA Act mandates pension funds to file financial returns, conduct annual general meetings and pay the RBA levies within 90 days from the end of the financial year in addition to actuarial valuation after every three years. Efficient pension funds fulfil these statutory duties.

Efficient pension funds monitor the performance of the service providers closely. This cannot be achieved if conflicts of interest with the service providers exist (Clark and Urwin 2009:6). OECD (2009c) further points that inefficiency results with impunity. This suggests that conflict of interests is a barrier to efficiency of pension funds.

According to Clark and Urwin (2009), proper utilisation of trust authority should lead to improvement in pension fund efficiency since it results in optimal allocation of resources, absence of conflicts of interest and accountability on the part of the pension fund leadership.

Previous studies by Clark and Urwin (2009); Yermo (2008b) and Clapman (2007) point to a positive relationship between trustee remuneration and pension fund performance. Clapman (2007) concludes that when trustees are compensated on the basis of their performance their commitment to the pension fund increases and they tend to make decisions devoid of conflicts of
interest. Remuneration of trustees in consideration for their services indicates efficient pension funds.

Timely payment of contributions to pension funds indicates the sponsor’s commitment to the pension fund operations, which minimises the default risk (Rauh 2006:35). Timely imbursement ensures that the pension fund’s investment plans are executed as planned and ensures that enough cash reserves are available to pay pension benefits. These factors contribute to the overall efficiency of the pension fund.

Pension fund returns are achieved in a complicated investment environment that rewards high risk with high returns (Eaton and Nofsinger 2001:125; Asebedo and Grable 2004:3; Kakes 2006:29; Bikker et al. 2009:14; Baldurdottir 2000:3). High risks expose pension funds to greater losses in the event of failure of the stock markets. Pension funds are therefore called upon to set strategies that enable them to achieve returns while carefully considering the risks that they expose members to. Achievement of an acceptable balance between risk and returns in the investment strategy is therefore a distinguishing factor between efficient and non-efficient pension funds.

The specific activities that managers can undertake are listed in table 10.1 below.
### TABLE 10.1: MANAGERIAL ACTIVITIES TO ACHIEVE OPERATIONAL EFFICIENCY

<table>
<thead>
<tr>
<th>OPERATIONAL EFFICIENCY ELEMENT</th>
<th>MANAGERIAL ACTIVITIES</th>
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<tbody>
<tr>
<td>• Decreasing administration and investment management costs</td>
<td>• Remove redundant operations; use competitive bidding in appointing service providers; and Outsource specialised pension fund practices (Canadian Treasury Board, 2009).</td>
</tr>
<tr>
<td></td>
<td>• Use cost effective investment strategies (Yang and Mitchell, 2008).</td>
</tr>
<tr>
<td></td>
<td>• Use cost effective communication means for instance the web (OECD, 2009b).</td>
</tr>
<tr>
<td>• Maintain proper records processing system</td>
<td>• Use proper technology to maintain records (Canadian Treasury Board, 2009).</td>
</tr>
<tr>
<td>• Maintain adequate funding levels</td>
<td>• Use realistic assumptions in actuarial valuation (Asher and Nandy, 2006a).</td>
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<tr>
<td></td>
<td>• Increase contribution rates (OECD, 2009b).</td>
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<tr>
<td></td>
<td>• Adopt cost reduction strategies (Canadian Treasury Board, 2009)</td>
</tr>
<tr>
<td>• Compliance with pension law</td>
<td>• Comply with RBA (2000) law.</td>
</tr>
<tr>
<td>• Proper use of authority by trustees</td>
<td>• Adhere to trust deed and pension legislations (Clark and Urwin, 2009).</td>
</tr>
<tr>
<td>• Remuneration of trustees</td>
<td>• Performance based remuneration is recommended as, as this aspect influences the fund’s performance (Clark and Urwin, 2009; Yemo, 2008b; Clapman, 2007).</td>
</tr>
<tr>
<td>OPERATIONAL EFFICIENCY ELEMENT</td>
<td>MANAGERIAL ACTIVITIES</td>
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<td>---------------------------------</td>
<td>------------------------</td>
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<tr>
<td>• Avoiding conflicts of interest with service providers</td>
<td>• Improve pension fund governance (Robinson, 2007).</td>
</tr>
<tr>
<td></td>
<td>• Use competitive bidding in appointing service providers (Canadian Treasury Board, 2009).</td>
</tr>
<tr>
<td></td>
<td>• Disclose all real or perceived conflicts of interest; abstain from voting or exclude oneself from deliberations which are in direct conflict; ensure procedures to manage and disclose potential conflicts of interest; document and disclose gifts and entertainment; avoid employment, contractual relationship or interest in service providers; avoid using the prestige or influence of one’s position for private gain or advantage; and avoid allowing political interests, philosophy or political party loyalty influencing decisions (CFA, 2008).</td>
</tr>
<tr>
<td>• Maintaining adequate and timely contributions</td>
<td>• Abide by the RBA (2008) rule requiring all contributions to be made to the pension fund as salary payments are made.</td>
</tr>
<tr>
<td></td>
<td>• Conduct actuarial review before determining the amount of contributions to make to the pension fund (RBA, 2008).</td>
</tr>
<tr>
<td>• Maintaining a fair balance between returns on investment and the pension fund risks</td>
<td>• Ensure all investments made are in the best of the interests of members; diversification of investments maturity matching (ensuring that investments mature as liabilities become due) (Kyiv, 2003).</td>
</tr>
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</table>
10.4.4 Conceptualisation of fund leadership

The empirical results recommend pension fund leadership with the following characteristics: honest sharing of information with members and other trustees; respected CEOs who are involved in pension fund management issues; effectiveness in maintaining performance measurement systems; effectiveness in complying with the pensions law; effectiveness in communicating with members on all pension fund matters; effectiveness in delegating investment discretion and the appraising of investment performance; and effectiveness in adhering to the legislated financial reporting requirements.

The exhibition of the above-mentioned type of leadership should potentially improve overall pension fund efficiencies (Lerner et al. 2007; Friedberg and Webb 2003; Bebchuk and Fried 2004). Pension fund managers are therefore advised to pursue the leadership identified above to increase the overall efficiency of their pension funds.

The literature on pension funds indicates how selected leadership elements can be achieved in Kenya through the implementation of various managerial activities. These activities include the following (see Table 10.2):
<table>
<thead>
<tr>
<th>LEADERSHIP ELEMENT</th>
<th>MANAGERIAL ACTIVITIES</th>
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</table>
| • CEO leadership   | • Avoid giving too much power to the CEO as it could lead to trustee apathy. Develop a collective method of leadership (Clark and Urwin 2009).  
• Adhere to the guidelines of the RBA Act (2000). |
| • Maintaining an effective performance measurement system | • Set performance goals based on funding ratio (proportion of pension assets to present value of liabilities, the size of investment return, a specific investment return target, or any combination of these measures (Hess and Impavido 2003).  
• Set clear goals in the areas of budgetary control, recruitment and investment of funds (Miller 2003). |
| • Compliance with regulatory levies | • Avoid paying levies.  
• Alternatively, pay levies on time (Whitehouse 2000). |
| • Financial reporting | • Consult the Global Reporting Initiative (GRI, 2009) for guidelines regarding voluntary reporting. |
| • Discretion to investment managers | • Consult the list of accredited investment managers on the RBA website |
10.4.5 Code of governance

The empirical results provide a basis to construct a pension fund code of governance. According to the results of the exploratory and confirmatory factor analyses, such a code of governance should include the following variables.

- reducing the benefits processing period to enhance confidence on the part of the members and other stakeholders;
- continuous finance education to trustees on financial, legal and strategic management matters;
- maintaining an effective internal control system of documenting, monitoring and reporting pension fund operations;
- effective communication to members in an easy to understand language through appropriate means;
- clearly defining the roles of trustees;
- clearly defining the roles of service providers; and
- avoiding conflict of interest with service providers.

In addition the literature provides recommendations to managers on how the above-mentioned fund governance elements can be achieved in Kenyan pension funds. These recommendations are summarised in Table 10.3.
<table>
<thead>
<tr>
<th>GOVERNANCE ELEMENT</th>
<th>MANAGERIAL ACTIVITY</th>
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| Reducing the benefits processing period | Use information technology to improve record keeping systems.  
Encourage members to constantly update their lists of beneficiaries in order to facilitate the identification of the latter in the event of death or incapacitation.  
Supply members with constant updates on their retirement accounts so that errors can be detected in advance.  
Enlighten members on their right to withdraw contributions from their defined contribution funds when they leave their employers before retirement (Impavido, 2002). |
| Regulation of service providers | Follow RBA (2008) guidelines.  
Consult guidelines of the National Treasury (2004) of South Africa. |
| Default risk of sponsor | Strive for autonomy from sponsors by investing in external markets (present study results).  
Manage retirement funds on behalf of various sponsors (Rauh, 2006). |
| Continuous education of trustees | Provide relevant education to trustees in financial management, human resource management, legal aspects of pension funds and strategic management (Ambachtsheer (2007).  
Access training provided by RBA. |
| Internal control system | Adhere to the minimum IOPS (2007b) requirements:  
- segregation of duties  
- four eyed principle (no decision over a certain amount can be concluded by one person)  
- decising-making limits and authorisations  
- use information technology to maintain pension fund data base  
- physical control that limit access to pension fund assets and documents.  
Audit internal control systems regularly (Canadian Association of Pension Supervisory Authorities, 2004).  
Ensure that internal controls address key risk areas (Stewart, 2009). |
TABLE 10.3: MANAGERIAL ACTIVITIES TO ACHIEVE GOVERNANCE ELEMENTS (CONTINUED)

| Communication to members | Adhere to the RBA Act (2000) requirements. 
|--------------------------|-----------------------------------------------------------------
|                          | Communicate critical information to members (OECD, 2009b):      |
|                          | - fund design and its implications                               |
|                          | - role of trustees, fund managers and consultants                |
|                          | - financial information                                          |
|                          | - short- and long-term pension fund objectives                  |
|                          | - members’ rights and obligations in the fund.                  |

<table>
<thead>
<tr>
<th>Investment strategies bases on market research</th>
<th>Constantly review investment assumptions and compare investment strategy with risk-return profile (Stanko, 2002).</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>In other words, go beyond the three-year review of investment policy guideline of RBA (2008).</td>
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</tbody>
</table>

The study thus recommends a governance code of conduct that aims at ensuring order and efficiency in the conduct of pension fund affairs and ensures that all stakeholders understand their role in pension fund management. Additionally, the governance code ensures that activities of the external consultants and those of the trustees are in tandem with the prevailing pensions law.

In summary: The empirical results suggest that the success of pension funds depends on (1) keeping the fund small but efficient, (2) compliance with fund regulations and (3) improve the governance of the pension assets of the middle-aged (31 to 40 years) members.
10.5 LIMITATIONS OF THE STUDY

Despite the above-mentioned contributions of the study, there were limitations. Firstly, the responses were affected by the social desirability effect. In other words, the respondents gave responses that were socially desirable (69.2% of responses were 4s and 5s).

Secondly, due to the absence of existing instruments to measure the variables investigated in this study, particularly as far as pension funds are concerned, self-constructed instruments were used. Some of these instruments produced low reliability coefficients, for example fund leadership ($\alpha = 0.56$) and fund governance ($\alpha = 0.52$). Moreover, important issues were captured with single item measures. For example effective communication between trustees and members was incorporated as a single item in the measurement of fund governance. Using communication as a variable on its own could yield better results. Similarly, the implementation of a performance management system formed part of the instrument to measure fund governance. This variable could be used as an independent variable on its own. In other words, an extended theoretical model to increase pension fund efficiency should be tested.

Thirdly, the instrument used to measure the operational efficiency of pension funds could have been inadequate in capturing what the respondents would have regarded as operational efficiency. This could have led to the insignificant relationships found between independent variables and operational efficiency as a dependent variable. Improved results could therefore be achieved by improving the measuring instrument of operational efficiency.

Fourthly, as indicated in Chapter 9, it appears that the trustees were not the most knowledgeable persons on pension fund management as was originally thought. Improved results could emerge if a similar study is done on a sample of executive managers.
The final limitation refers to the fact that the relationship between financial and operational efficiency, on the one hand, and profitability, on the other hand, was not tested. It could therefore not be concluded that improving operational and financial efficiencies would necessarily lead to profitability of pension funds.

10.6 SUGGESTIONS FOR FURTHER RESEARCH

The theoretical model for improving pension fund efficiency could be tested in other industries.

It is suggested that the study be replicated when the global crisis subsides to confirm or nullify the results especially those touching on financial (DEA) efficiency.

The most prevalent design in use by pension funds in Kenya is the defined contribution. The study recommends that the research efforts shift to the improvement of the defined contribution design as opposed to the benefits of the defined contribution design over the defined benefit design.

Finally, future research efforts should explore improved measuring instruments to measure the variables included in the hypothesised model.

10.7 CONCLUSION

This study makes important contributions to the management of pension funds in general and in Kenya specifically. Firstly, through high-level statistical analyses, the study tested popular perceptions about the determinants of pension fund efficiencies. Testing a theoretical model to improve pension fund efficiency via structural equation modelling, is a first in this area of study.
Secondly, the study has both confirmed and disconfirmed some determinants of pension fund efficiency. Fund size has been confirmed as a significant determinant of the financial efficiency of pension funds. The empirical results revealed that smaller funds are perceived to be more financially efficient than bigger ones. Fund size however did not exert an influence on the operational efficiency of pension funds. The empirical results further revealed that fund regulations influence how funds are governed and led. Adherence to the identified fund regulations were shown to improve fund governance and leadership.

The empirical results provided indirect statistical support for untested thinking that membership age influences the operational efficiency of pension funds. According to Clark’s (2003) lifecycle theorem, pension funds with younger members are less robust in their operations due to lower resources. As membership ages, contributions and managerial experience increase, pension fund returns also increase. As members however reach retirement age, pension funds record lower returns, because they are then confronted with benefit payouts and consequent conservatism in investment strategy. The empirical results of the present study support this theorem, as they showed that the membership category, 31 to 40 years, exerted a significant positive influence on how pension funds are governed. The empirical results however showed that membership age did not influence the financial efficiency of pension funds. The empirical results also disconfirmed the relationships between fund design and the operational and financial efficiency of pension funds. In summary, it appears that the most important variables to focus on in the pursuit of pension fund operational and financial efficiency, either directly or through improved governance and leadership, are fund size (smaller is better), membership age (especially the 31 to 40 year age group) and compliance to fund regulations.

The third contribution of this study is that it has produced conceptualisations of what operational efficiency, fund leadership and fund governance are. A proper conceptualisation of operational efficiency provides clear indicators against which such efficiency can be measured in pension funds. Proper
conceptualisations of fund governance and leadership provide the basis on which clear codes of conduct for such governance and leadership can be formulated.

Already in the 1950s Peter Drucker (1954:378) asserted that “the most efficient way to produce anything is to bring together under one management as many of the activities needed to turn out the product”. The present study has succeeded in pointing out which activities should be brought together to improve the overall pension fund efficiency in Kenya. Covey (2007) regards management as the efficiency in climbing the ladder of success, while leadership is the factor that determines whether the ladder is leaning against the right wall. The present study has unearthed important leadership and governance characteristics for pension funds in Kenya.


Aon Consulting Inc. 2005b. DB/DC Bundling can simplify administration burdens more. Aon.


Faktum. 2009. The Costs of Danish Pension Companies among the lowest in the OECD. ATP.


FOE. 2009. Top 100 UK pension funds – how ethical are they? Friends of the Earth Trust.


IOPS. 2008a. IOPS Cross Country Profiles: Canada. IOPS.


Kyiv (code name). 2003. Pension Investment Regulation: Collection of Data and Recommendations. USAID.


Dear Respondent

I am a post-graduate student studying towards my DBA (Doctor in Business Administration) at the Nelson Mandela Metropolitan University Business School. The aim of my study is to improve the financial efficiency of pension funds in Kenya. I believe that my study would make a contribution to improving the management of pension funds as well as the delivery of benefits to the Kenyan population.

You are part of our selected sample of respondents whose views we seek on the above-mentioned matter. We would therefore appreciate it if you could answer a few questions. It should not take more than twenty minutes of your time and we want to thank you in advance for your co-operation.

There are no correct or incorrect answers. Please answer the questions as accurately as possible. For each statement, tick (with a cross X) the number which best describes your experience or perception. For example, if you strongly agree with the statement, tick the number 5. If you strongly disagree with the statement, tick the number 1. Similarly, if you believe a stated variable is very important strongly, tick the number 5 and if you believe the stated variable is not important, tick the number 1. Tick only one answer for each statement and answer all questions please. We guarantee that all information will be handled with the STRICTEST CONFIDENTIALITY.

Thank you very much.

A. Njuguna (Student no.: 208022572)
FINANCIAL EFFICIENCY

Please enter the requested financial information about pension plan in the table below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Member contributions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sponsor contributions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total incomes (dividends, interest and rent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment management expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benefits payable (including annuities and lump sum payments)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total value of the fund</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please indicate the number of members who have left the fund (retired, death or shifted to other funds) as a result of which benefits were paid or are due.

<table>
<thead>
<tr>
<th>Number of Leavers</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 -200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>201-300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>301-400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>401-500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 plus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## FUND SIZE
Please indicate below the number of members of your pension plan.

<table>
<thead>
<tr>
<th>Active members</th>
<th>&lt; 100</th>
<th>101 – 200</th>
<th>201 – 300</th>
<th>300 – 400</th>
<th>401 – 500</th>
<th>&gt;500</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

## FUND DESIGN

What is your current pension plan design?

<table>
<thead>
<tr>
<th>Defined Contribution</th>
<th>Defined Benefit</th>
<th>Hybrid of DC and DB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Have you converted your pension plan design (from defined benefit to defined contribution) since you started your pension plan?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

If your answer to question above is YES, please state the year that you converted

<table>
<thead>
<tr>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

## MEMBERSHIP AGE

Please indicate the number of members of your pension plan which fall within the following age brackets.

<table>
<thead>
<tr>
<th>Years</th>
<th>&lt;20</th>
<th>21 – 30</th>
<th>31 – 40</th>
<th>41 – 50</th>
<th>51 – 60</th>
<th>&gt;60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of members</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
MEASURING INSTRUMENTS PRIOR TO FACTOR ANALYSIS

Fund governance

*Please indicate the importance of the following factors in the governance or regulatory environment of pension funds in Kenya:*

- Board of trustees having members in active employment
- The CEO’s leadership of the pension fund
- Continuous finance education to trustees by the pension fund
- The pension fund providing liability insurance cover for trustees
- The pension fund using competitive bidding in appointing service providers
- The pension fund using an internal control system of documenting, monitoring and reporting its operations
- Effective communication to members by the pension fund
- The pension fund’s ability to avoid conflict of interest in decision-making
- The pension fund regularly monitoring of the performance of service providers
- The pension fund clearly defining the roles of trustees
- The pension fund clearly defining the roles of service providers
- The pension fund maintaining an effective performance measurement system
- The pension fund outsourcing specialized fund management functions
- Remuneration of trustees
Fund regulations

Please indicate the importance of the following factors in the governance or regulatory environment of pension funds in Kenya:

The effective regulation of compliance costs by the RBA

The RBA regulation limiting the number of trustees to 10 (regardless of the size of the scheme)

RBA’s regulation of fees charged by service operators

Tax on non-exempt incomes of pension fund members as imposed by the Kenyan Revenue Authority

The compliance with RBA levies

The regulatory meetings (4 per year) with the service providers as stipulated by RBA

The risk based approach adopted by RBA in the supervision of pension funds

The required RBA financial reporting regulations to which pension funds should adhere to

The risk tolerance limits imposed by the RBA

The RBA legislation limiting investments in real estate to 5% of the fund value
Operational efficiency

Please indicate the extent to which you agree or disagree with the following statements:

Our administration costs have decreased considerably over the past two years

Our benefits processing period has decreased considerably over the past two years

We have considerably improved our internal control system over the past two years

The time we spend in trustee meetings has decreased considerably over the last two years

Our records processing system has improved considerably over the past two years

The time taken reporting to members has decreased considerably over the past two years

Our compliance costs have decreased considerably over the past two years

Our rate of return on investment has increased considerably over the past two years

Member involvement in decision-making in our plan has increased considerably over the past two years

Sponsor involvement in our pension plan has decreased significantly over the last two years
We have experience less under-funding (pension liabilities exceed pension assets) in our pension fund over the past two years.

We have been appointing service providers on competitive bidding over the past two years.

We have been successfully complying to RBA regulations over the past two years.

**Fund risk**

Our pension fund is negatively exposed to default risk from our sponsor.

Our pension fund is negatively exposed to default risk from our employer.

Our pension fund does not have strategies in place to counter the stock market risk.

Our pension fund faces bankruptcy if our employer ceases to exist.

In our pension fund, there is a clear separation of the management of the pension fund from the management of our employer’s business.

Our pension fund could be negatively affected by the industry changes of our employer.

We do not have a fund to provide for unexpected pension expenses.

Our pension fund is negatively exposed to default risk from our employees.

We expose our pension fund to high volatility to earn higher returns.

Our pension fund invests a large proportion of funds in shares.
We tolerate risk beyond the guidelines given by RBA

**Investment strategy**

Our pension plan rules do not restrict investments in any company

We have a pension investment committee that makes investment decisions

Trustees are covered by liability insurance

We have invested considerably more in fixed interest investments (bonds and Treasury bills) over the past two years

RBA rules on investment restrictions have a negative impact on our investment decisions

We conduct independent evaluations of our pension fund performance to confirm the rates given by the fund administrators

We have a clear investment policy that is strictly implemented

Trustees give total investment discretion to the fund managers

We have an investment risk management policy for our pension plan

Our investment strategies are based on findings of market research conducted by fund managers

We set quarterly targets on investment returns and strategize to achieve them
Fund ethics

It is not always possible to ensure confidentiality in all trust matters

It is not always possible to reject inappropriate requests from the sponsor (employer)

It is sometimes necessary not to be completely honest when sharing information with other trustees

It is sometimes necessary not to be completely honest when sharing information with members

A conflict of interest with service providers is often acceptable

Personal bias in decision making is not a negative thing

It is not always possible to utilize trustees’ authority properly in making pension plan decisions

It is often necessary to withhold the truth when the pension fund has experienced losses due to poor investment or weak policies
CLASSIFICATION DATA

Please make a cross (X) or enter the relevant information in the blocks provided.

Please indicate your TITLE
(Mr., Miss, Dr., Prof, etc.):

GENDER: Male [ ] Female [ ]

AGE GROUP: 20 – 29 30 – 39 40 – 49 50 – 59 60+

Please indicate your HIGHEST EDUCATIONAL QUALIFICATION:

Please indicate your JOB TITLE:
(Director, Deputy-director, Senior Manager, etc.)

Please indicate the name of your Fund:

Please indicate the position you hold in your pension fund (Chairman, trustee, member or secretary)
ANNEXURE 3: MEASURING INSTRUMENTS AFTER FACTOR ANALYSIS

OPERATIONAL EFFICIENCY

Our administration costs have decreased considerably over the past two years

Our records processing system has improved considerably over the past two years

We have experience less under-funding (pension liabilities exceed pension assets) in our pension fund over the past two years.

We have been successfully complying to RBA regulations over the past two years

We ensure confidentiality in all trust matters

We always reject inappropriate requests from the sponsor (employer)

We are completely honest when sharing information with other trustees

We avoid conflict of interest with service providers

Personal bias in decision making is a negative thing

We utilize trustees’ authority properly in making pension plan decisions

We do not withhold the truth when the pension fund has experienced losses due to poor investment or weak policies

We remunerate trustees properly
We do not limit investments in real estate to 5% of the fund value

We do not expose our pension fund to default risk from our sponsor

We do not tolerate risk beyond the guidelines given by RBA

**FUND LEADERSHIP**

 Completely honesty when sharing information with members

 CEO leadership is important in the governance or regulatory framework of pension funds

 Maintaining an effective performance measurement system

 Compliance with RBA levies

 Adhering to the required RBA financial reporting regulations

 Trustees giving total investment discretion to the fund managers

**FUND GOVERNANCE**

 Our benefits processing period has decreased considerably over the past two years

 Continuous finance education to trustees by the pension fund

 The pension fund using an internal control system of documenting, monitoring
and reporting its operations

Effective communication to members by the pension fund

The pension fund clearly defining the roles of trustees

Adhering to RBA’s regulation of fees charged by service operators

Our pension fund faces bankruptcy if our employers cease to exist

Our investment strategies are based on findings of market research conducted by fund managers

**FUND REGULATIONS**

The regular monitoring of the performance of service providers is important in the governance or regulatory framework of pension funds

The effective regulation of compliance costs by the RBA is important in the governance or regulatory framework of pension funds

The RBA regulation limiting the number of trustees to 10 (regardless of the size of the scheme) is important in the governance or regulatory framework of pension funds

The regulatory meetings (4 per year) with the service providers as stipulated by RBA is important in the governance or regulatory framework of pension funds

A clear separation of the management of the pension fund from the management of our employer’s business is important in the governance or regulatory framework of pension funds
Having a clear investment policy that is strictly implemented is important in the governance or regulatory framework of pension funds